

Workshop Manual Audi A6 2011 ➤ Audi A6 China 2012 ➤ Audi A7 Sportback 2011 ➤

multitronic 0AW, front-wheel drive

Edition 07.2017



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List of Workshop Manual Repair Groups

Repair Group

00 - Technical data

37 - Controls, housing

38 - Gears, control

39 - Final drive - differential



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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

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00 – Technical data

Identification

(ARL005401; Edition 07.2017)

⇒ "1.1 Gearbox identification", page 1

1.1 Gearbox identification

The "multitronic 0AW, front-wheel drive" gearbox (continuously variable transmission) is installed in combination with various engine versions. Allocation ⇒ page 10.

Location of code letters on gearbox

The gearbox code letters and gearbox serial number are stamped onto the top -arrow A- and bottom -arrow B- of the gearbox housing.

Code letters and gearbox serial number

	3X19163	
NDQ	C14	164
14		05080

Explanation for this example:

3X19163 : gearbox identification number

NDQ : gearbox code letters

C14 : production line (not relevant)

164 : serial number

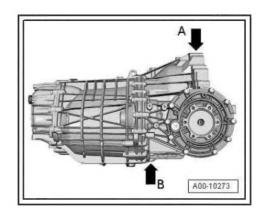
14 : factory code (not relevant)

05080: Production date 5th August 2010 nercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Note

- The gearbox code letters can also be found on the vehicle data
- Location of vehicle data stickers ⇒ Maintenance ; Booklet 411.



2 Safety precautions

- ⇒ "2.1 Safety precautions when working on vehicle", page 2
- ⇒ "2.2 Safety precautions when working on vehicles with start/ stop system", page 3
- ⇒ "2.3 Safety precautions when using testers and measuring instruments during a road test", page 3
- ⇒ "2.4 Safety precautions when working on subframe",
- ⇒ "2.5 Safety precautions when tow-starting and towing", page 4

2.1 Safety precautions when working on ve-

Observe the following precautions to avoid possible injury and/or damage to the vehicle:



WARNING

Accidents and injury can be caused if a gear is inadvertently engaged while the engine is running.

Before performing any work with the engine running, set the gearbox to position "P" and pull up the parking brake button to apply the electromechanical parking brake.

Danger from toxic exhaust gases when engine is running.

When the engine is running, the exhaust system must always be connected to the exhaust gas extractor.

Risk of injury as the radiator fan(s) may start up automatically.

Unplug electrical connectors before working in vicinity of radiator cowl.

Observe the following precautions to avoid possible injury and/or irreparable damage to electrical and electronic components:

Switch off ignition before disconnecting and connecting test equipment.



Caution

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s authorised by AUDI AG. AUDI AG does not When disconnecting the battery there is a risk of irreparable damage to electronic components.

Observe notes on procedure for disconnecting the battery.

Always switch off the ignition before disconnecting the battery ⇒ Electrical system; Rep. gr. 27; Battery; Disconnecting and connecting battery .

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2.2 Safety precautions when working on vehicles with start/stop system

Please note the following when working on vehicles with start/stop system:



WARNING

Risk of injury due to automatic engine start on vehicles with start/stop system.

- On vehicles with activated start/stop system (indicated by a message in the instrument cluster), the engine may start automatically if it needs to.
- Therefore it is important to ensure that the start/stop system is deactivated when performing repairs (switch off ignition, if required switch on ignition again).

2.3 Safety precautions when using testers and measuring instruments during a road test

Observe the following precautions if test equipment has to be used when road-testing the vehicle.



WARNING

Accidents can be caused if the driver is distracted by test equipment or if test equipment is not secured.

Injuries can be caused if the passenger's airbag is triggered in a collision.

- The use of test equipment while driving causes distraction.
- There is an increased risk of injury if test equipment is not secured.
- Always secure test equipment to the rear seat with a strap and have it operated from there by a second person.

2.4 Safety precautions when working on subframe

Note the following when working on the subframe:



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Risk of damage to parts of the running gear.

- ◆ Do not let the vehicle down on the wheels if the gearbox mounting, steering rack or subframe cross brace are not properly installed.
- Do NOT support the vehicle at the subframe or the subframe cross brace (e.g. with a trolley jack).

2.5 Safety precautions when tow-starting and towing



Caution

Risk of irreparable damage to gearbox.

When the vehicle is towed, the selector lever must be set to position "N" and the vehicle must not be towed for a distance of more than 50 km or at a speed in excess of 50 km/h.



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Note

It is not possible to start the engine by means of tow-starting, for instance in the case of insufficient battery charge or if the starter is not working.

3 Repair instructions

- ⇒ "3.1 Rules for cleanliness", page 5
- ⇒ "3.2 General notes", page 5
- ⇒ "3.3 General repair instructions", page 5
- ⇒ "3.4 Contact corrosion", page 7
- ⇒ "3.5 Routing and attaching lines and wiring", page 8

3.1 Rules for cleanliness

- Thoroughly clean all joints and connections and the surrounding areas before disconnecting.
- Use cleaning fluid D 009 401 04- to clean the gearbox and its components.
- Use commercially available lint-free cloths for cleaning, such as the "WYPALL X70 / WORKHORSE" cloth from Kimberly-Clark Professional.
- Seal off open lines and connections immediately with clean plugs or protective caps from engine bung set - VAS 6122- .
- After removal, place parts on a clean surface and cover them. Use sheeting or lint-free cloths.
- Carefully cover or seal open components if repairs cannot be carried out immediately.
- Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not Only install clean components; replacement parts should only not guarantee or accept any liability be unpacked immediately prior to installation as of information in this document. Copyright by AUDI AG.
- Protect unplugged electrical connectors against dirt and moisture and make sure connections are dry when attaching.

3.2 General notes

The "multitronic 0AW, front-wheel drive" gearbox is similar in function to the continuously variable automatic gearbox multitronic 01J. Detailed information on the basic principle of this gearbox ⇒ Self-study programme No. 228; CVT gearbox multitronic 01J.



Note

The multitronic 0AW is also referred to as "Continuously Variable" Transmission", in short "CVT".

3.3 General repair instructions

Proper tools and the maximum possible care and cleanliness are essential for satisfactory repairs to the transmission units. The usual basic safety precautions also naturally apply when carrying out repair work.

To avoid repetition, a number of generally applicable instructions for the various repair procedures are summarised here. They apply to the work described in this Manual.

Guided Fault Finding, Vehicle self-diagnosis and Test Instruments

Before servicing the gearbox, the exact cause of the failure should be identified using Guided Fault Finding, Vehicle Self-diagnosis and Test Instruments ⇒ Vehicle diagnostic tester.



Environmental and waste disposal regulations for oil

- ATF, gear oil and any other type of oil must be handled with
- Dispose of drained oil properly.
- Always adhere to statutory environmental and waste disposal regulations.
- Observe the information shown on the packaging of the oil.

Special tools

For a complete list of special tools used in this Workshop Manual ⇒ Workshop equipment and special tools

Gearbox

- Observe rules for cleanliness when working on gearbox ⇒ page 5 .
- The engine must not be run and the vehicle must not be towed with the end cover removed or without ATF in the gearbox.
- After installing, check the fluid levels and top up as required: Checking and correcting ATF level page 87 and Checking ses, in part or in whole, is not oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee or accept any lian oil level in front final drive and topping up page 105 ocat guarantee ocat guarantee oca uarantee or accept any liability pacities <u>⇒ page 9</u>, specifications ⇒ Electronic parts cata-

O-rings, oil seals and gaskets

- Always renew O-rings, oil seals and gaskets.
- After removing gaskets and seals, always inspect the contact surface on the housing or shaft for burrs resulting from removal or for other signs of damage.
- Thoroughly clean housing joint surfaces before assembling.
- Lightly lubricate the outer circumference and sealing lip of oil seals with ATF before installing.
- Lightly lubricate O-rings with ATF before installation to prevent them from being crushed during assembly.
- Use only approved type of ATF for parts running in ATF. Other types of lubricant will cause malfunctions of the gearbox.
- The open side of the oil seal should face the side containing the fluid.
- When installing a new oil seal, position the seal such that the sealing lip does not contact the shaft in the same place as the old seal (make use of installation depth tolerances).
- After installing, check the fluid levels and top up as required: Checking and correcting ATF level ⇒ page 87 and Checking oil level in front final drive and topping up ⇒ page 105 . Specifications ⇒ Electronic parts catalogue.

Nuts, bolts

- Loosen bolts in reverse sequence to the specified tightening sequence.
- Bolts and nuts used to secure covers and housings must be tightened in steps according to the specified tightening sequence and method.
- Nuts and bolts which secure covers and housings should be loosened and tightened in diagonal sequence and in stages if no tightening sequence is specified.
- Tightening torques apply to non-lubricated bolts and nuts (unless specified otherwise).



- Renew self-locking nuts and bolts.
- Unless otherwise specified, use a wire brush to clean the threads of bolts which are secured with locking fluid. Then install bolts with locking fluid; for locking fluid refer to ⇒ Electronic parts catalogue.
- Threaded holes which take self-locking bolts or bolts coated with locking fluid must be cleaned (using a tap or similar). Otherwise there is a danger of the bolts shearing off the next time they are removed.

Circlips, snap rings

- Do not over-stretch circlips.
- Renew circlips which have been damaged or over-tensioned.
- Circlips must be properly seated in the base of the groove.

Bearings

- Install needle bearings so the lettering (side with thicker metal) faces towards the installing tool.
- Lubricate bearings with gear oil or ATF, depending on fitting location.
- ◆ Do not interchange inner or outer races of bearings of the same size.
- Always renew the tapered roller bearings on one shaft together and use new bearings from a single manufacturer.

Shims

- Use a micrometer to measure the shims at several points. Different shim thicknesses make it possible to obtain the exact shim thickness required; if necessary, fit 2 shims.
- Check for burrs and damage. Install only shims which are in perfect condition.

Mechatronic unit



Caution

The gearbox control unit (mechatronic unit) can be irreparably damaged by electrostatic discharge.

- Before handling the electrical connector or mechatronic unit, the mechanic must discharge static. To do so, touch an earthed metal object, such as a heater radiator or lifting platform, with your hand.
- Do not touch contact pins in gearbox connector with bare

3.4 Contact corrosion

Contact corrosion can occur if unsuitable fasteners are used (e.g., bolts, nuts, washers, etc.).

For this reason, only fasteners with a special surface coating are fitted.

Rubber or plastic parts and adhesives also consist of non-conductive materials.

If you are not sure whether used parts can be re-installed, always fit new parts ⇒ Electronic parts catalogue.

fritt, A DaA.



Please note:

- Use only genuine spare parts: these have been fully tested and are compatible with aluminium.
- We recommend the use of accessories approved by Audi.
- Damage caused by contact corrosion is not covered by warranty.

Routing and attaching lines and wiring 3.5

- Mark fuel lines, vacuum lines, pipes/hoses for activated char-coal filter system and electrical wiring etc. before removal so they can be re-installed in the original positions and correctly connected. If necessary, make sketches or take photographs.
- To avoid damaging pipes, hoses and wiring, ensure sufficient clearance from all moving or hot components in engine compartment (limited space in engine compartment).



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4 Technical data

⇒ "4.1 Capacities", page 9

⇒ "4.2 Allocation of gearbox to engine", page 10

4.1 Capacities

ATF section in gearbox

Capacities	multitronic 0AW					
Initial filling by manufacturer	approx. 8 litres					
Fluid change	 ◆ 5.5 7 litres ◆ Change interval for ATF ⇒ Maintenance tables 					
Lubricant ATF for gearbox "multitronic 0AW, front-wheel drive" ⇒ catalogue						



Caution

Risk of damage to gearbox

- ◆ Select the correct type of ATF ⇒ Electronic parts catalogue. Only the ATF available as a replacement part for "multitronic 0AW, front-wheel drive" may be used in this gearbox.
- ◆ The ATF must NOT be mixed with other types of ATF, even in small quantities. Otherwise this could cause malfunctions and/or failure of the gearbox.
- ♦ Check ATF level and top up as required ⇒ page 87.
- ◆ Draining ATF and filling up after repairs ⇒ page 93

Front final drive

Capacities	multitronic 0AW
Initial filling	approx. 1.1 litres
Oil change	 No change required Lifetime filling; no change required unless repair work has been performed (max. 1.1 ltr.)
Lubricant	 ◆ Different gear oils for multitronic 0AW ◆ Select correct gear oil for vehicle according to gearbox code letters ⇒ Electronic parts catalogue



Caution

Risk of damage to gearbox

- Different types of gear oil are available for the "multitronic OAW" gearbox.
- Use only the correct type of gear oil, as assigned to the gearbox code letters.
- The gear oils must NOT be mixed, even in small quantities. This would result in leaks at the oil seals. Select correct gear oil for vehicle according to gearbox code letters ⇒ Electronic parts catalogue . Only the gear oil available as a replacement part for the "multitronic 0AW" may be used in the front final drive.
- The filler plug must always be renewed after checking the oil level. Always select correct version according to gearbox code letters in ⇒ Electronic parts catalogue . To prevent leaks on the gearbox, please check the new filler plug by comparing it with the old one.
- The gear oil must NOT be mixed with other types of gear oil, even in small quantities. This would cause leakage on the gearbox.
- Checking gear oil level in front final drive and topping up ⇒ page 105
- Filling up gear oil in front final drive after repairs ⇒ page 106

4.2 Allocation of gearbox to engine

The following data can be found in the ⇒ Electronic parts catalogue.

- Date of manufacture
- Allocation of mechatronic unit and software for automatic gearbox control unit - J217-
- Correct type of flange shafts

multitronic	0AW						
Gearbox	Code letters	NDH Audi A6 2011 ►, Audi A7 2011 ► 4-cyl. 2.0 ltr. TDI 120 kW or 130 kW		NDL Audi A6 2011 ►, Audi A7 2011 ► 4-cyl. 2.0 ltr. TFSI 132 kW		NDM Audi A6 2011 ►, Audi A7 2011 ► 4-cyl. 2.0 ltr. TFSI 155 kW	
Allocation	Model						
	Engine						
Ratio between input shaft and pulley set 1		49 : 48	1.021	49 : 48	1.021	49 : 48	1.021
Ratio between pulley set 2 and pinion shaft		41 : 24	1.708	39 : 25	1.560	39 : 25	1.560
Front final drive		34 : 11	3.091	34 : 11	3.091	34:11	3.091

multitronic		0AW				
Gearbox	Code letters	NDN	NDP	NDQ		
Allocation	Model	Audi A6 2011 ►, Audi A7 2011 ►	Audi A6 2011 ►, Audi A7 2011 ►	Audi A6 2011 ►, Audi A7 2011 ►		
	Engine	6-cyl. 2.5 ltr. FSI 140 kW or 150 kW	6-cyl. 2.8 ltr. FSI 150 kW or 162 kW	6-cyl. 3.0 ltr. TDI 150 kW		





multitronic	0AW					
Ratio between input shaft and pulley set 1	53: 45	1.178	49 : 48	1.021	49 : 48	1.021
Ratio between pulley set 2 and pinion shaft	41 : 25	1.64	41 : 24	1.708	41 : 24	1.708
Front final drive	34 : 11	3.091	34 : 11	3.091	34 : 11	3.091

multitronic	0AW						
Gearbox Code letters		NKP		NSL		PCF	
Allocation	Model	Audi A7 2011 ► Engine 6-cvl. 3.0 ltr. TDI 4-cvl. 2		Audi A6 2011 ►		Audi A6 2011 ►	
	Engine			4-cyl. 2.0 120 kW c	0 ltr. TDI or 130 kW	4-cyl. 2.0 ltr. TDI 100 kW, 120 kW or 130 kW	
Ratio between input shaft and pulley set 1		49 : 48	1.021	49 : 48	1.021	49 : 48	1.021
Ratio between pulley set 2 and pinion shaft		41 : 24	1.708	41 : 24	1.708	41 : 24	1.708
Front final drive		34:11	3.091	34:11	3.091	34 : 11	3.091

37 – Controls, housing

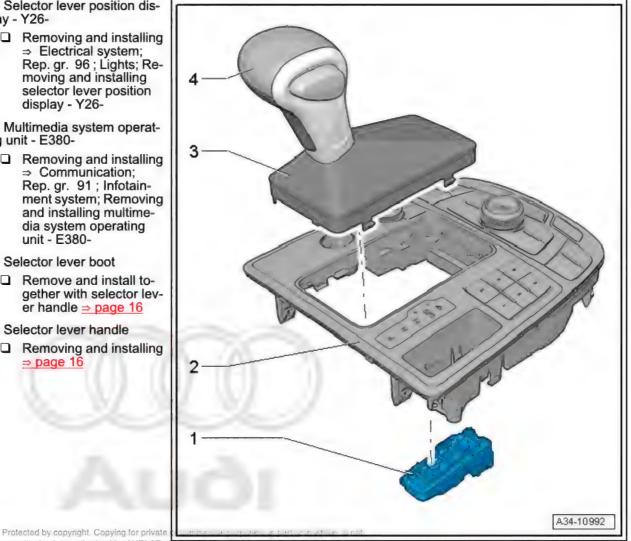
Selector mechanism

- ⇒ "1.1 Exploded view selector lever handle", page 12
- ⇒ "1.2 Exploded view selector mechanism", page 13
- ⇒ "1.3 Exploded view selector lever cable", page 15
- ⇒ "1.4 Manual release from position P", page 15
- ⇒ "1.5 Removing and installing selector lever handle", page 16
- ⇒ "1.6 Removing and installing selector mechanism", page 19
- ⇒ "1.7 Checking selector mechanism", page 21
- ⇒ "1.8 Removing and installing selector lever cable", page 23
- ⇒ "1.9 Checking and adjusting selector lever cable", page 27
- ⇒ "1.10 Removing and installing selector lever lock solenoid N110 ', page 31
- ⇒ "1.11 Removing and installing selector lever sensors control unit J587 ", page 33
- ⇒ "1.12 Removing and installing gear selector position P switch F305 ", page 34
- ⇒ "1.13 Renewing selector shaft oil seal", page 34

1.1 Exploded view - selector lever handle



- 1 Selector lever position display - Y26-
 - Removing and installing ⇒ Electrical system; Rep. gr. 96; Lights; Removing and installing selector lever position display - Y26-
- 2 Multimedia system operating unit - E380-
 - Removing and installing ⇒ Communication; Rep. gr. 91; Infotainment system; Removing and installing multimedia system operating unit - E380-
- 3 Selector lever boot
 - ☐ Remove and install together with selector lever handle ⇒ page 16
- 4 Selector lever handle
 - Removing and installing ⇒ page 16



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1.2 Exploded view - selector mechanism



WARNING

Accidents and injury can be caused if a gear is inadvertently engaged while the engine is running.

Prior to performing work with engine running, move selector lever to position "P" and pull up parking brake button to apply the electromechanical parking brake.

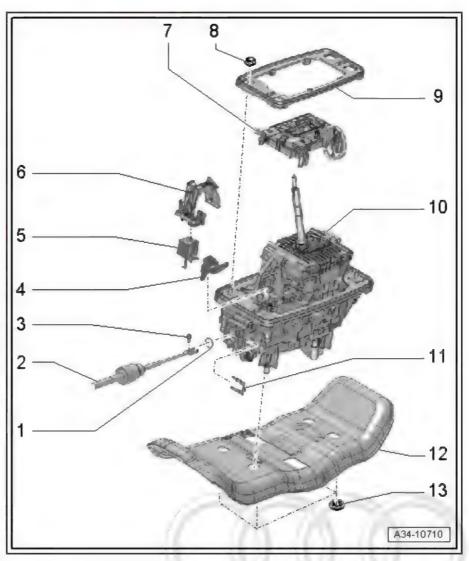
Check selector mechanism before dismantling ⇒ page 21.

1	_	\cap	ri	na
ı	-	V	-11	ng

□ Renew

2 - Selector lever cable

- Do not bend or kink
- Exploded view ⇒ page 15
- 3 Bolt
 - For adjusting selector lever cable
 - □ Tightening torque ⇒ Item 3 (page 15)
- 4 Gear selector position P switch - F305-
 - Consists of two reed contacts on printed circuit board in selector lever lock solenoid -N110-
 - Can only be renewed together with selector lever lock solenoid - N110-⇒ page 31
- 5 Selector lever lock solenoid - N110-
 - Removing and installing ⇒ page 31
- 6 Sealing cap
 - □ Above selector lever lock solenoid - N110-
- 7 Selector lever sensors control unit - J587- and tiptronic switch - F189-
 - Removing and installing ⇒ page 33
- 8 Nut
 - Secures selector mechanism to body
 - □ 4x
 - □ 8 Nm
- 9 Gasket
- 10 Shift unit
 - Can only be renewed as a complete unit
 - □ Removing and installing ⇒ page 19
- 11 Retaining clip
 - For selector lever cable
- 12 Noise insulation
 - Not fitted on all vehicles
 - ☐ For correct version, refer to ⇒ Electronic parts catalogue
- 13 Retaining washers
 - For noise insulation
 - □ 4x



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□ Renew

1.3 Exploded view - selector lever cable

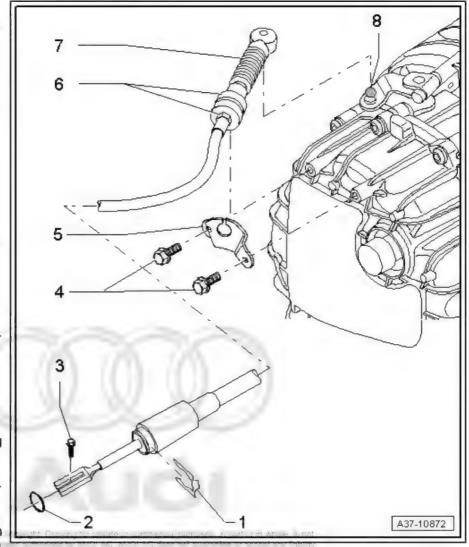
- 1 Retaining clip
 - □ For selector lever cable
- 2 O-ring
 - □ Renew
- 3 Bolt
 - For adjusting selector lever cable
 - □ 13 Nm
- 4 Bolt
 - □ 2x
 - □ 8 Nm
- 5 Cable support bracket
 - ☐ For selector lever cable
- 6 Nut
 - □ 2x
 - Permanently mounted on selector lever cable
 - ☐ Lock nuts secure selector lever cable to support bracket
 - ☐ 13 Nm
- 7 Selector lever cable
 - Do not bend or kink
 - Removing and installing ⇒ page 23
 - □ Selector lever cable must be renewed if rubber sleeve is damaged
 - □ Before installing, lightly lubricate ball socket with polycarbamide grease G 052 142 A2- . With residence
 - ☐ When installing, make sure that rubber sleeve on gearbox end is not twisted
 - □ Adjusting ⇒ page 27
- 8 Gearbox selector lever

1.4 Manual release from position P



Note

- If the battery is disconnected or discharged, the selector lever cannot be shifted from position "P". In this case, the vehicle cannot be pushed or towed.
- When you operate the manual release mechanism the selector lever lock solenoid - N110- will release the lock without current supply.



Procedure



Note

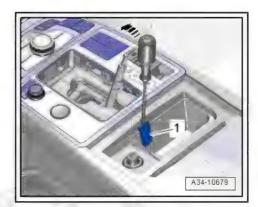
The selector lever handle is removed in the illustration. The handle does not have to be removed in order to manually release the selector mechanism from position "P".

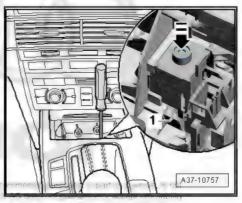
- If fitted, remove front ashtray insert.
- Use screwdriver to pry off cover cap -1- in ashtray housing/ storage tray -arrow-.
- Carefully insert tool (e.g. screwdriver from tool kit) through centre opening in ashtray housing and into cylinder -arrow- on selector lever lock solenoid - N110- and at the same time press and hold interlock button and move selector lever out of position "P".



Note

- This releases the selector lever lock in position "P" by way of the locking lever -1-.
- The cylinder -arrow- on selector lever lock solenoid N110may be partially concealed by noise insulation or wiring (move clear to one side).





1.5 Removing and installing selector lever handle

Special tools and workshop equipment required

♦ Removal wedge - 3409-



Thin cable tie or assembly aid for interlock button on handle. A new selector lever handle is supplied with the assembly aid pre-fitted.



Removing

- Pull up parking brake button to apply electromechanical parking brake.
- Shift selector lever into position "N".



Note

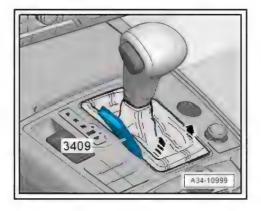
The selector lever handle is removed together with the selector lever boot.

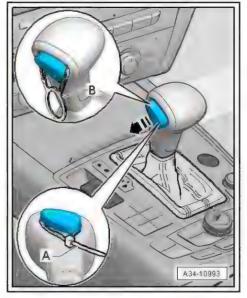
- Carefully pry out selector lever boot at the sides in direction of -arrows- using removal wedge - 3409- .
- Pull out interlock button on selector lever handle -arrow- and secure in this position using cable tie -A- or assembly aid -Bas shown in illustration.



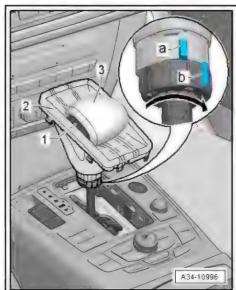
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The assembly aid -B- is pre-fitted at the factory on a new selector lever handle. The assembly aid must not be removed until the new handle has been installed. This assembly aid can then be kept for future use as a locking tool.





- Turn selector lever boot -2- inside out over selector lever handle -3-.
- Turn locking ring as far as stop in direction of -arrow- so that markings -a- and -b- are no longer in line.
- Pull off selector lever handle together with selector lever boot, taking care not to touch interlock button -1-.



Installing

When installing the selector lever handle, the interlock button must be pulled out to the stop and secured with either a cable tie -A- or with the assembly aid -B- supplied together with the

If the interlock button was not properly secured when the handle was removed, and has dropped inside the handle, it must be pulled out and secured as described below before it can be installed.

Affix adhesive pad or double-sided adhesive tape -2- to interlock button -1- on selector lever handle.



Note

- Alternatively, a small suction cup can also be used (approx. 15 mm dia., commercially available).
- The adhesive pad or double-sided adhesive tape must be completely removed after installing the handle.
- Press a suitable tool -3- with clean, flat surface onto adhesive surface as shown in illustration and pull out interlock button by this means -arrow-.
- Secure interlock button in pulled-out position using cable tie -A- or assembly aid -B-, as shown in illustration.
- Remove adhesive pad or double-sided adhesive tape -2- and clean interlock button -1-.
- Shift selector lever into position "N".

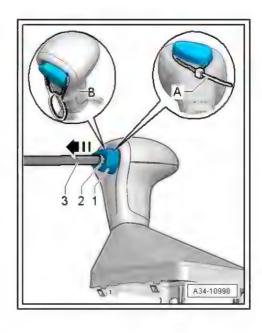


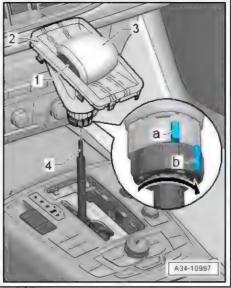
Note

The selector lever can be moved by pulling the release rod -4-.

- Turn selector lever boot -2- inside out over selector lever handle -3-.
- Turn locking ring as far as stop in direction of -arrow- so that markings -a- and -b- are no longer in line.
- Push selector lever handle on with interlock button facing driver's side so that catch engages.

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Turn locking ring in direction of -arrow- until it engages; markings -a- and -b- should be in line.

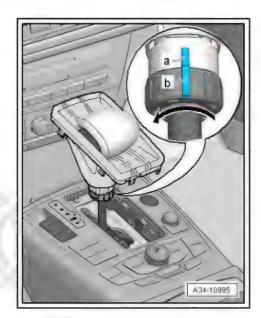


Caution

Risk of damage to selector lever handle

The locking ring can only be turned when the handle has been pushed on all the way.

- Remove the cable tie or assembly aid, allowing the interlock button mechanism to engage in the vertical groove on the selector lever. If necessary, press the interlock button into the selector lever handle.
- Move selector lever to positions "R" and "S" to check button mechanism.
- If the selector lever cannot be moved into the above positions. the handle must be removed again ⇒ page 16.
- Pull selector lever boot -2- down and clip onto multimedia system operating unit - E380- .



1.6 Removing and installing selector mechanism Protected by copyright for a strictly attended to the respect to the contract of the strictly and the strictly attended to the strictly and the strictly attended to the st

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♦ Removal lever - 80 - 200-



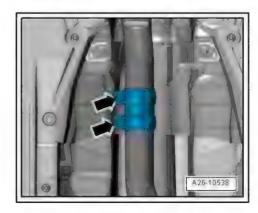
Removing



Caution

The flexible joints in the front exhaust pipe can be damaged.

- The flexible joints in the front exhaust pipe must not be bent further than 10°.
- Release clamp -arrows-, push clamp towards rear, lower front exhaust pipe slightly and tie up to underbody.



- Use removal lever 80 200- to press ball socket -1- on selector lever cable off gearbox selector lever.
- Remove bolts -2- for cable support bracket.



Note

- Do not bend or kink the selector lever cable.
- -Arrow- can be disregarded.
- Remove selector lever handle \Rightarrow page 16.
- Remove front ashtray or storage compartment ⇒ General body repairs, interior; Rep. gr. 68; Centre console; Exploded view - centre console.
- Unplug electrical connectors -2- and -4-.



Note

- Insulating mat is not shown in illustration.
- The assistance of a second mechanic is required to detach the selector mechanism from below.
- Disregard -arrows-.
- Remove insulating mat above selector mechanism.
- Remove bolts -1, 3, 5, 6-.
- Remove selector mechanism.

Installing

Installation is carried out in reverse sequence; note the following:

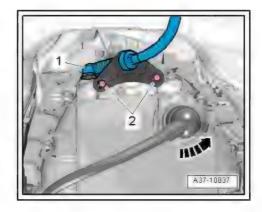


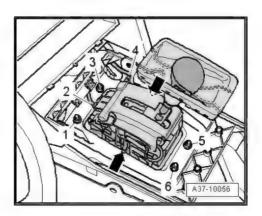
Note

- Before installing, lightly lubricate ball socket on selector lever cable with polycarbamide grease - G 052 142 A2- .
- Do not bend or kink the selector lever cable.
- Adjust selector lever cable ⇒ page 27.
- Check selector mechanism ⇒ page 21.
- Install front ashtray or storage compartment ⇒ General body repairs, interior; Rep. gr. 68; Centre console; Exploded view - centre console .
- Install selector lever handle ⇒ page 16.

Tightening torques

- ⇒ "1.2 Exploded view selector mechanism", page 13
- ⇒ Rep. gr. 26; Exhaust pipes/silencers; Exploded view silencers









1.7 Checking selector mechanism



WARNING

Accidents and injury can be caused if a gear is inadvertently engaged while the engine is running.

- ♦ Before performing any work with the engine running, set the gearbox to position "P" and pull up the parking brake button to apply the electromechanical parking brake.
- ♦ Observe safety precautions when the vehicle is moving \Rightarrow page 3.
- You must work through all the tests listed. If specified results are not obtained, adjust selector lever cable (⇒ page 27) and perform "Guided Fault Finding" using vehicle diagnostic tester .

Overview:

- ◆ 1. Checking operation of selector mechanism ⇒ page 21
- Checking interlock button on selector lever handle ⇒ page 22
- 1. Checking operation of selector mechanism
- It should not be possible to operate the starter while the selector lever is in positions "R", "D/S" or in the "tiptronic gate".
- When travelling at speeds above 5 km/h and shifting into selector lever position "N", the solenoid for the selector lever lock must not engage and block the selector lever. The selector lever can be shifted into a driving gear.
- When travelling at speeds below 2 km/h (almost stationary), the solenoid for the selector lever lock should only engage about 1 second after you shift into selector lever position "N". The selector lever cannot be shifted out of "N" position until the brake pedal is pressed.

Selector lever in position "P":

- Pull up parking brake button to apply electromechanical parking brake.
- Switch off ignition.
- The selector lever is locked and cannot be shifted out of "P" position, even when the interlock button on the handle is pressed in.
- Switch on ignition.

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Note

To obtain the "ignition on" position, briefly press the entry and start authorisation button - E408- .

- Do not depress brake pedal.
- The selector lever is locked and cannot be shifted out of "P" position, even when the interlock button on the handle is pressed in. Selector lever lock solenoid - N110- blocks selector lever.
- Press and hold brake pedal.
- Selector lever lock solenoid N110- releases selector lever. It is possible to shift into a driving gear. With interlock button on



selector lever handle pressed, shift selector lever slowly from "P" position through "R, N, and D/S" and check whether the selector lever position display - Y6- in the instrument cluster shows the correct selector lever position in each case.

- Pull selector lever from "D/S" towards the rear and release selector lever.
- The selector lever will return automatically to the position "D/ S". The selector lever position display - Y6- in the instrument cluster should change from "D" to "S1" and then back to "D" when the selector lever is pulled back once again.

Selector lever in position "N" and ignition switched on:

- Do not depress brake pedal.
- After a short delay: Selector lever is locked and cannot be shifted out of "N" position even when pressing the interlock button on the selector lever handle. Selector lever lock solenoid - N110- blocks selector lever.
- Depress brake pedal.
- Selector lever lock solenoid N110- releases selector lever. Shifting into position "D/S" is possible.

Selector lever in position "D/S", ignition switched on:

- Shift selector lever into "tiptronic gate".
- The illuminated "D/S" symbol in the selector lever position display - Y26- should go out and the "+" and "-" symbols should light up.
- The selector lever position display Y6- in the instrument cluster should change from "D" to "M1" when the selector lever is moved into the "tiptronic gate". ALL, AUD ALL AU. Alazon file curbon from the control of

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- Do not move selector lever to position "P", select e.g. position "N".
- Switch off ignition.
- A warning message should be displayed in the instrument cluster.
- The vehicle cannot be locked.
- Move selector lever to position "P".
- Switch off ignition.
- The vehicle can now be locked.

If results do not match specifications:

- Perform Guided Fault Finding routine using vehicle diagnostic tester.
- Adjust selector lever cable ⇒ page 27.
- Check interlock button on selector lever handle ⇒ page 22.
- 2. Checking interlock button on selector lever handle

Check that interlock button moves freely:

- Interlock button should move easily when pressed without
- Interlock button should spring back fully on its own when released.

If results do not match specifications:

Check whether selector lever handle is correctly installed ⇒ page 16.



Check whether selector lever is bent.

Function test:

Ignition switched on

Press the interlock button on the selector lever handle to move the handle into the positions listed below; it should not be possible to move the selector lever into these positions unless the interlock button is pressed.

- "P" to "R" (also depress brake pedal)
- "N" to "R" (brake pedal also has to be depressed after a short delay when vehicle is stationary)
- ♦ "R" to "P"

If results do not match specifications:

- Check whether selector lever handle is correctly installed ⇒ page 16 .
- Check electrical connectors on selector mechanism.
- Perform Guided Fault Finding using vehicle diagnostic tester and check selector lever lock solenoid - N110-.
- Adjust selector lever cable ⇒ page 27.

1.8 Removing and installing selector lever

Special tools and workshop equipment required

♦ Removal lever - 80 - 200-

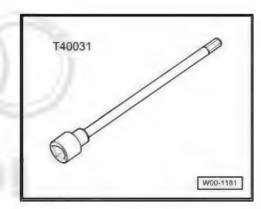


Removal wedge - 3409-





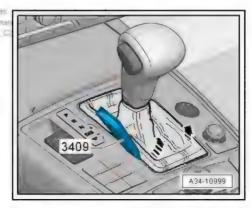
Socket - T40031-



Removing

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- Pull up parking brake button to apply electromechanical parking brake.
- Shift selector lever to position "D".
- Carefully pry out selector lever boot at the side in direction of -arrows- using removal wedge - 3409- and turn selector lever boot inside out over selector lever handle.



Insert socket and key - T40031- through access hole -arrowin selector mechanism and slacken bolt on selector lever cable approx. one turn.



Note

- Only loosen clamping bolt do not remove.
- Clamping bolt can only be accessed with selector lever in position "D".
- With clamping bolt loosened, selector lever must remain in position "D".

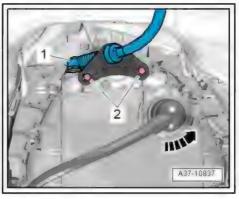


- Use removal lever 80 200- to press ball socket -1- on selector lever cable off gearbox selector lever.
- Remove bolts -2- for cable support bracket.
- Move selector lever cable clear.



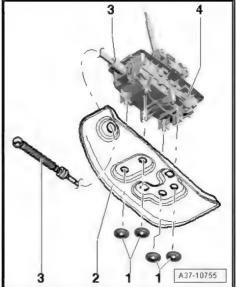
Note

- Do not bend or kink the selector lever cable.
- -Arrow- can be disregarded.





- Remove retaining washers -1-.
- Pull off noise insulation -2- and slide forwards.



- Pull off retaining clip -1- for selector lever cable.
- Pull selector lever cable -2- out of selector mechanism.

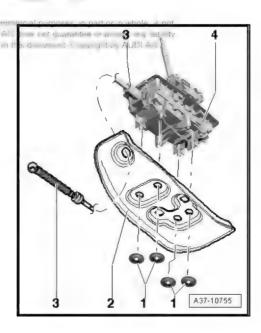
Installing

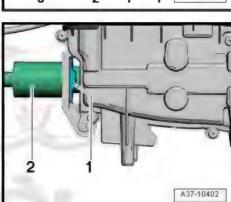
Installation is carried out in reverse sequence; note the following:



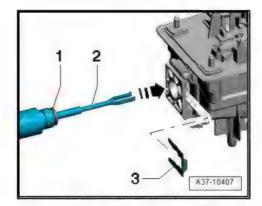
Note

- Before installing, lightly grease cable eye and ball socket on selector lever cable with polycarbamide grease - G 052 142
- Renew retaining washers.
- Slide selector lever cable -3- through hole on noise insulation -2-.

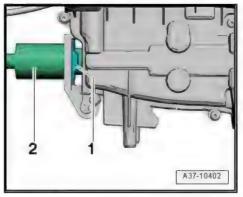




- Fit O-ring -1- on selector lever cable.
- Insert selector lever cable -2- into shift unit -arrow-.
- Secure selector lever cable -2- with retaining clip -3-.

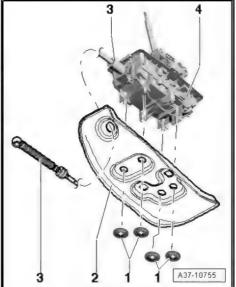


Installation position: angled end of retaining clip -1- must point towards selector mechanism.



Secure noise insulation -2- with retaining washers -1-.

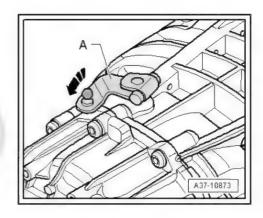




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- Press gearbox selector lever -1- on gearbox towards the rear as far as it will go -arrow- until parking lock engages.
- When the parking lock has engaged it should no longer be possible to rotate both front wheels in one direction at the same time.
- Then push gearbox selector lever forward 3 notches so that gearbox is in position "D".
- Check that selector lever is also in position "D" inside the ve-
- Carefully press ball socket of selector lever cable onto gearbox selector lever in this position.





Note

Take care not to bend gearbox selector lever when pressing on cable; support lever if necessary, as otherwise selector mechanism can no longer be adjusted accurately.

- Check selector lever cable and adjust if necessary ⇒ page 27 .
- Check selector mechanism ⇒ page 21.

Tightening torques

♦ #1.3 Exploded view - selector lever cable", page 15

1.9 Checking and adjusting selector lever cable

⇒ "1.9.1 Checking and adjusting selector lever cable",

⇒ "1.9.2 Adjusting selector lever cable to basic setting", page 28

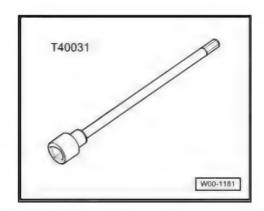
1.9.1 Checking and adjusting selector lever

Special tools and workshop equipment required

♦ Removal wedge - 3409-

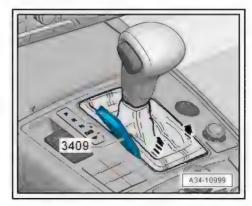


Socket - T40031-



Procedure

- Pull up parking brake button to apply electromechanical parking brake.
- Shift selector lever to position "D".
- Carefully pry out selector lever boot at the side in direction of -arrows- using removal wedge - 3409- and turn selector lever boot inside out over selector lever handle.



Insert socket and key - T40031- through access hole -arrowin selector mechanism and slacken bolt on selector lever cable approx. one turn.

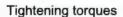


Note

- Only loosen clamping bolt do not remove.
- Clamping bolt can only be accessed with selector lever in position "D"
- With clamping bolt loosened, selector lever must remain in position "D".
- Carefully move selector lever slightly forwards and backwards, without shifting lever into a different selector lever position. The selector lever cable is thereby slackened.
- Use socket and key T40031- to tighten clamping bolt in this position, taking care not to touch selector lever.
- Check selector mechanism ⇒ page 21.

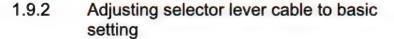
If selector mechanism is not functioning correctly after adjusting selector lever cable, proceed as follows:

Adjust selector lever cable to basic setting ⇒ page 28.



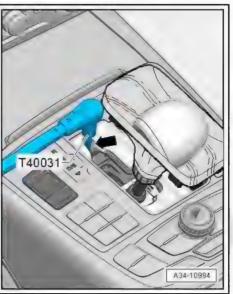
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♦ #1.3 Exploded view - selector lever cable", page 15



Special tools and workshop equipment required

Vehicle diagnostic tester

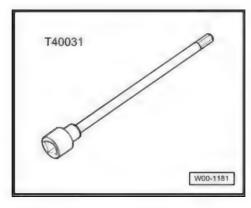




Removal lever - 80 - 200-



♦ Socket - T40031-



Procedure

- Guided Fault Finding using the vehicle diagnostic tester has been completed; all faults repaired.
- Using the diagnostic tester in "Guided Fault Finding" mode, go to "Function/Component Selection" and select the following menu items:
- ◆ Drive system
- 0AW gearbox
- 01 Self-diagnosis compatible systems
- 02 Gearbox electronics
- 02 Gearbox electronics, Functions
- 02 Measured values
- Select the value for Gear from the menu.
- Compare the following readings:
- ♦ Value for Gear on vehicle diagnostic tester.
- ♦ Selector lever positionespent transmitted managements at the management of the property ALTIAL
- Gear indicated on selector lever position display Y26- (on selector mechanism)

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♦ Selector lever position display - Y6- in instrument cluster

Requirement:

The displays should match

If the displays do not match:

Adjust selector lever cable ⇒ page 27.

If the displays cannot be matched by adjusting the selector lever cable:

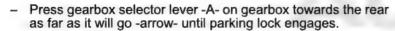
Adjusting selector lever cable to basic setting:

Use removal lever - 80 - 200- to press ball socket -1- on selector lever cable off gearbox selector lever.



Note

Items marked -2- and -arrow- can be disregarded.

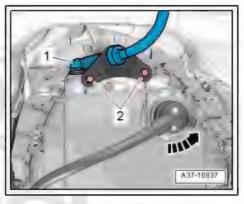


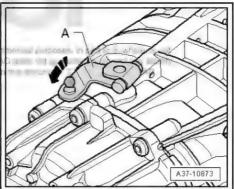
- When the parking lock has engaged it should no longer be rivate or co possible to rotate both front wheels in one direction at the I AG. AUDI same time.
- Then push gearbox selector lever forward 3 notches so that gearbox is in position "D".
- Check that selector lever is also in position "D" inside the vehicle.
- Insert socket and key T40031- through access hole -arrowin selector mechanism and slacken bolt on selector lever cable approx. one turn.



Note

- Only loosen clamping bolt do not remove.
- Clamping bolt can only be accessed with selector lever in position "D".
- With clamping bolt loosened, selector lever must remain in position "D".
- Detach socket and key T40031- from torque wrench and leave it inserted in access hole -arrow- in selector mechanism.









Carefully press ball socket -1- of selector lever cable onto gearbox selector lever in this position.



Note

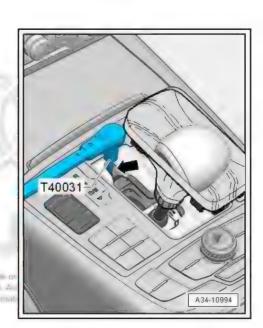
- Take care not to bend gearbox selector lever when pressing on cable; support lever if necessary, as otherwise selector mechanism can no longer be adjusted accurately.
- Items marked -2- and -arrow- can be disregarded.
- With vehicle diagnostic tester in "Guided Fault Finding" mode, select 02 - Gearbox electronics and the function 02 -Measured values
- Select the value for Gear from the menu.
- Compare the following readings:
- Value for Gear on vehicle diagnostic tester
- Selector lever position
- Gear indicated on selector lever position display Y26- (on selector mechanism)
- Selector lever position display Y6- in instrument cluster

Requirement:

- The displays should match
- Carefully move selector lever slightly forwards and backwards, without shifting lever into a different selector lever position. The selector lever cable is thereby slackened.
- Use socket and key T40031- to tighten clamping bolt in this position, taking care not to touch selector lever.
- Check selector mechanism ⇒ page 21.

Tightening torques

♦ ± "1.3 Exploded view - selector lever cable", page 15



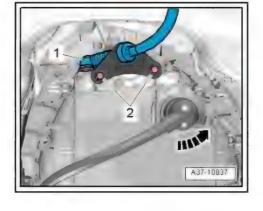
1.10 Removing and installing selector lever lock solenoid - N110-

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Khar to the heart

Removing

- Move selector lever to position "P".
- Remove front ashtray or storage compartment ⇒ General body repairs, interior; Rep. gr. 68; Centre console; Exploded view - centre console.



Unscrew nuts -1, 3, 5, 6- a few turns, but do not remove completely.



Note

- This will lower the shift unit slightly and facilitate removal.
- Items marked -2, 4- and -arrows- can be disregarded.



Caution

The selector mechanism can be damaged by broken retaining clips, retaining tabs or other objects.

- Make sure that no parts or objects drop into the selector mechanism. If this happens, the selector mechanism will have to be renewed!
- Release retaining tabs -2- and -3- in direction of -arrow-, lift front of sealing cap -A- slightly and hold in that position.



Note

This prevents the retaining tabs from engaging again.

- Using a screwdriver, release top retaining tab -1- of sealing cap from retainer -B- in direction of -arrow- and lift out sealing cap -A-.
- Unplug electrical connector on selector lever lock solenoid -N110-.
- Press retaining hook -A- in direction of -arrow- and hold in this position.



Note

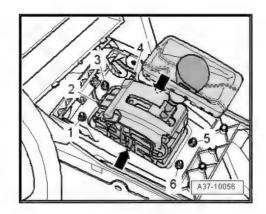
The shift unit must be renewed if the retaining hook -A- breaks off.

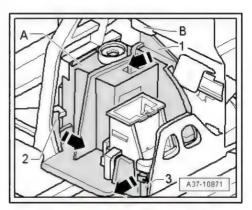
- Tilt bottom part of selector lever lock solenoid N110- out in direction of -arrow- so that ball head -1- disengages from operating lever on selector mechanism.
- Detach selector lever lock solenoid N110- .

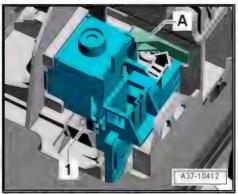
Installing

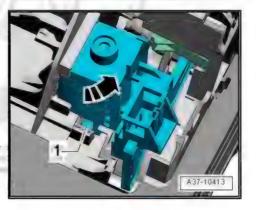
Installation is carried out in reverse sequence; note the following:

- Turn ball head -1- into correct position for installation.
- Guide selector lever lock solenoid N110- into selector mechanism at an angle from above and tilt bottom part in opposite direction of -arrow-.



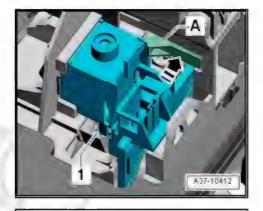




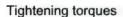




- Ball head -1- must engage fully in operating lever on selector mechanism; press home with a small screwdriver if necessary.
- Secure selector lever lock solenoid N110- to retaining hook



- Place cover -A- over selector lever lock solenoid N110- and carefully engage -1 ... 3-.
- Attach electrical connectors.
- Check function of selector mechanism before continuing assembly ⇒ page 21.
- Install front ashtray or storage compartment ⇒ General body repairs, interior; Rep. gr. 68; Centre console; Exploded view centre console . permitted unless authorised by AUDI AG. AUDI AG doc



◆ ⇒ "1.2 Exploded view - selector mechanism", page 13

1.11 Removing and installing selector lever sensors control unit - J587-

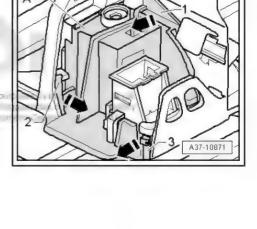
Removing

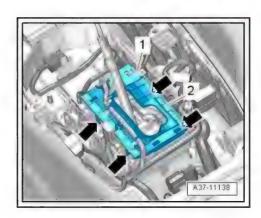
- Remove selector lever handle ⇒ page 16.
- Remove multimedia system operating unit E380- ⇒ Communication; Rep. gr. 91; Infotainment system; Removing and installing multimedia system operating unit - E380-.
- Unplug electrical connector -1-.
- Release 4 retaining tabs -arrows- and lift out selector lever sensors control unit - J587- -item 2-.

Installing

Installation is carried out in reverse sequence; note the following:

- Make sure selector lever sensors control unit J587- clicks in place with 4 retaining tabs.
- Install multimedia system operating unit E380- ⇒ Communication; Rep. gr. 91; Infotainment system; Removing and installing multimedia system operating unit - E380- .
- Install selector lever handle ⇒ page 16.



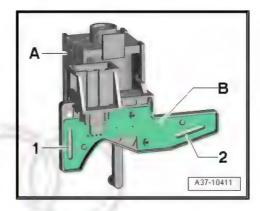


1.12 Removing and installing gear selector position P switch - F305-

Fitting location: Gear selector position P switch - F305- consists of two microswitches -1- and - 2- and is installed on printed circuit board -B- in selector lever lock solenoid - N110-

Gear selector position P switch - F305- can only be renewed together with selector lever lock solenoid - N110-.

⇒ "1.10 Removing and installing selector lever lock solenoid N110 ", page 31



1.13 Renewing selector shaft oil seal

Procedure



Note

The oil seal for the selector shaft can only be renewed with the gearbox removed from the vehicle: rotected by copyright. Crisical for proceedings permitted unless

- Remove gearbox ⇒ page 35.
- Renew oil seal for selector shaft ⇒ Servicing multitronic 0AW; Rep. gr. 39; Oil seals; Overview of fitting locations - oil seals.
- After installing gearbox refer to ⇒ "7.1 Checking ATF level", page 87.



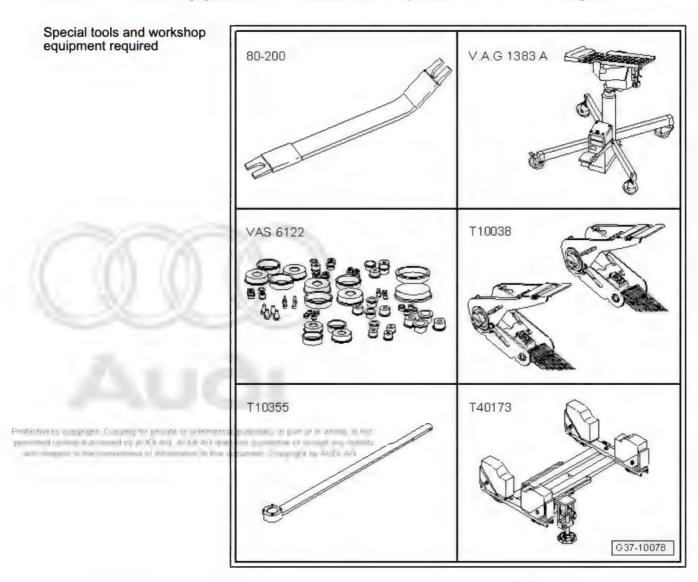
Removing and installing gearbox 2

- ⇒ "2.1 Removing gearbox", page 35
- ⇒ "2.2 Installing gearbox", page 62
- ⇒ "2.3 Tightening torques for gearbox", page 70

Removing gearbox

- \Rightarrow "2.1.1 Removing gearbox vehicles with 4-cylinder 2.0 ltr. TFSI engine", page 35
- ⇒ "2.1.2 Removing gearbox vehicles with 6-cylinder 2.5/2.8 ltr. FSI engine", page 41
- ⇒ "2.1.3 Removing gearbox vehicles with 4-cylinder 2.0 ltr. TDI engine", page 49
- ⇒ "2.1.4 Removing gearbox vehicles with 6-cylinder 3.0 ltr. TDI engine", page 55

2.1.1 Removing gearbox - vehicles with 4-cylinder 2.0 ltr. TFSI engine



- ♦ Removal lever 80 200-
- Engine and gearbox jack V.A.G 1383 A-

- Engine bung set VAS 6122-
- Tensioning strap T10038-
- Counterhold tool T10355-
- Gearbox support T40173-

Removing

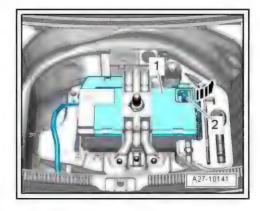
- Bring front wheels into straight-ahead position.

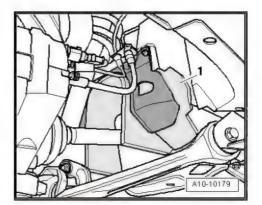


Caution

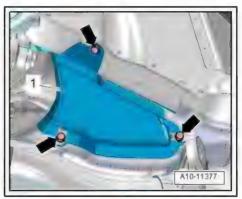
When disconnecting the battery there is a risk of irreparable damage to electronic components. roial purpose in particing white since

- Observe notes on procedure for disconnecting the battery.
- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27; Battery; Disconnecting and connecting battery.
- Remove front wheels ⇒ Running gear, axles, steering; Rep. gr. 44; Wheels, tyres.
- Remove cover -1- for drive shaft from wheel housing (both sides) ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Exploded view - noise insulation .

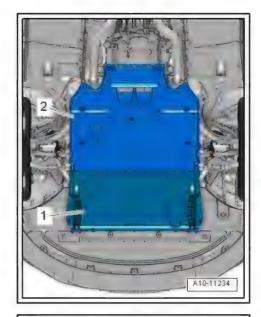




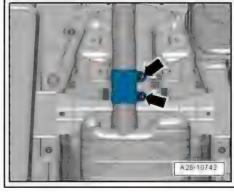
Remove bolts (left and right) -arrows- and detach heat shield



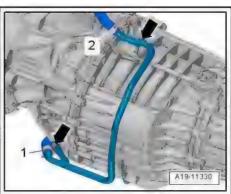
Remove noise insulation -1- and -2- ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Removing and installing noise insulation.



- Remove front silencer(s) ⇒ Rep. gr. 26; Exhaust pipes/silencers; Removing and installing front silencer.
- Drain coolant ⇒ Rep. gr. 19; Cooling system/coolant; Draining and filling cooling system.
- Remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50; Bulkhead; Exploded view plenum chamber partition panel.

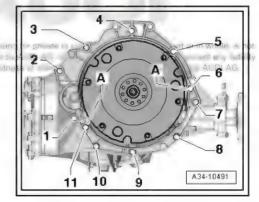


Remove coolant pipe on gearbox (left-side) ⇒ Rep. gr. 19; Coolant pipes; Removing and installing coolant pipes.

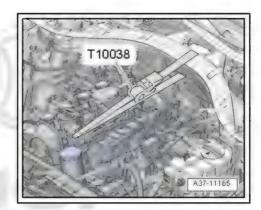


Remove bolts -2 ... 5- securing gearbox to engine (accessible from above).

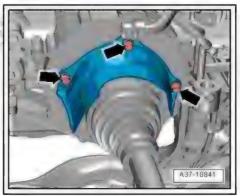
Professional Contraction



- Fit body brace in installation position and screw in bolts hand-
- Secure engine with tensioning strap T10038- as shown in illustration.



- Remove bolts -arrows- and detach heat shield for drive shaft (right-side). permitted unless authorised by AUDI AG. AUDI
- Unbolt drive shafts (left and right) from flange shafts of gear mation box ⇒ Running gear, axles, steering; Rep. gr. 40; Drive shaft; Removing and installing drive shaft .



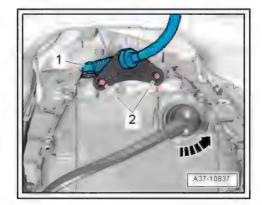
- Use removal lever 80 200- to press ball socket -1- on selector lever cable off gearbox selector lever.
- Remove bolts -2- for cable support bracket.
- Move selector lever cable clear.



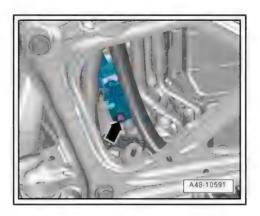
Caution

The gearbox control unit (mechatronic unit) can be damaged by electrostatic discharge.

- ♦ Before handling electrical connectors, mechanic must discharge static. To do so, touch an earthed metal object, such as a heater radiator or lifting platform, with your hand.
- Do not touch contact pins in gearbox connector with bare hands.



- Turn fastener anti-clockwise -arrow-, unplug electrical connector on gearbox and move wiring clear.
- Detach intermediate steering shaft from steering rack and telescope splines upwards ⇒ Running gear, axles, steering; Rep. gr. 48; Steering column; Removing and installing intermediate steering shaft .





Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40; Subframe; Removing and installing subframe cross brace.



Caution

Risk of damage to parts of the running gear.

♦ Do not let the vehicle down on the wheels if the gearbox mounting, steering rack or subframe cross brace are not properly installed.

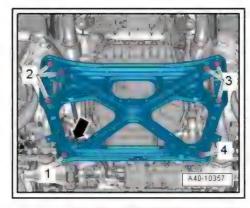
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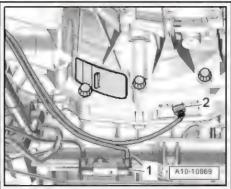
Unplug electrical connector 2 for engine speed sender G28and move wiring clear.



Note

Disregard -item 1-.







Note

Place a cloth underneath ATF cooler to catch escaping coolant.

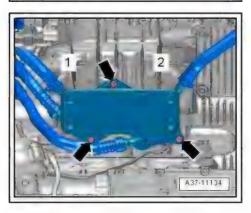
- Release hose clip -1- and detach coolant hose.
- Remove bolts -arrows- and detach ATF cooler.

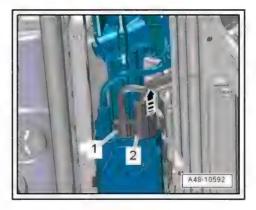


Note

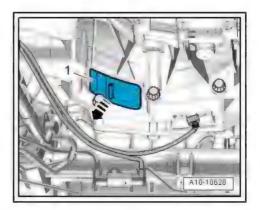
Disregard -item 2-.

- Unplug electrical connector -2- for steering rack (to do so, push retainer towards rear -arrow- and press down release catch).
- Unplug electrical connector -1-.





Pull cover -1- off bottom of gearbox -arrow-.

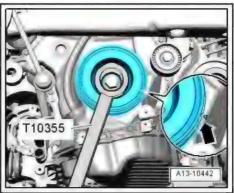


To slacken bolts for drive plate, counterhold crankshaft with counterhold tool - T10355- at vibration damper.

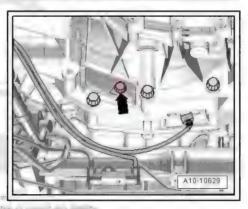


Note

-Arrow- can be disregarded.

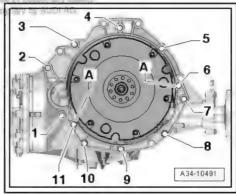


Remove 3 bolts -arrow- for drive plate (turn crankshaft 120° in direction of engine rotation each time).

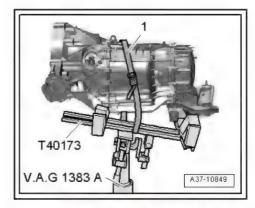


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- Remove bolt -1- for starterspect to the correctness of information in this documents
- Detach starter from gearbox but do not remove starter.
- Unscrew remaining bolts -6 ... 11- securing engine to gearbox.



Position engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- underneath gearbox and secure with tensioning strap -1- as shown in illustration.





Note

For illustration purposes, the gearbox support - T40173- is not shown.

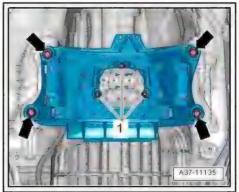
Remove bolts -arrows- for tunnel cross member.

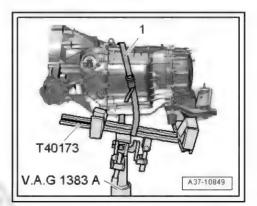


Note

Disregard -item 1-.

- Detach gearbox from engine and lower carefully using engine and gearbox jack - V.A.G 1383 A-.
- If necessary, lower engine slightly at the front by slackening tensioning strap -T10038-.

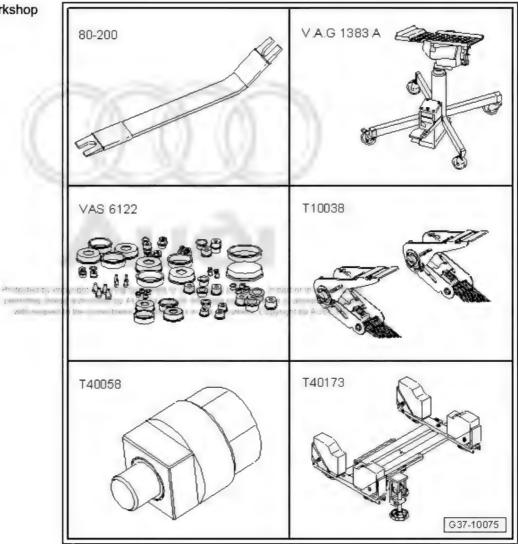




2.1.2 Removing gearbox - vehicles with 6-cylinder 2.5/2.8 ltr. FSI engine

Prote teats, isplicate Countries of the protection of the protecti whites, eith from motios of the property and the above the property. AUE AC

Special tools and workshop equipment required



- Removal lever 80 200-
- Engine and gearbox jack V.A.G 1383 A-
- Engine bung set VAS 6122-
- Tensioning strap T10038-
- Adapter T40058-
- Gearbox support T40173-

Removing

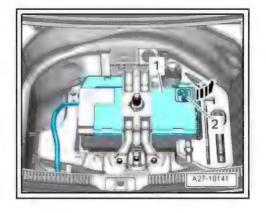
Bring front wheels into straight-ahead position.



Caution

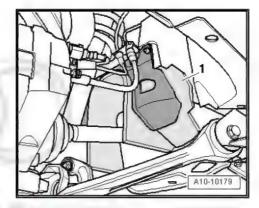
When disconnecting the battery there is a risk of irreparable damage to electronic components.

- Observe notes on procedure for disconnecting the battery.
- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27; Battery; Disconnecting and connecting battery.





- Remove front wheels ⇒ Running gear, axles, steering; Rep. gr. 44; Wheels, tyres.
- Remove cover -1- for drive shaft from wheel housing (both sides) ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Exploded view - noise insulation.

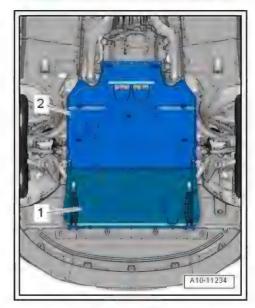


Remove bolts (left and right) -arrows- and detach heat shield -1-.

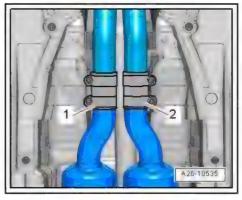
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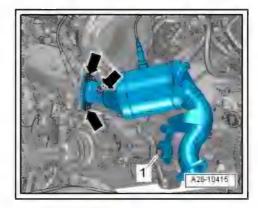
Remove noise insulation -1- and -2- ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Removing and installing noise insulation .



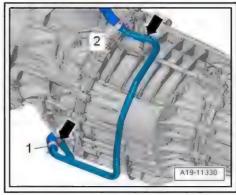
- Remove front silencers (left and right) ⇒ Rep. gr. 26; Exhaust pipes/silencers; Removing and installing front silencer.
- Drain coolant ⇒ Rep. gr. 19; Cooling system/coolant; Draining and filling cooling system.
- Remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50; Bulkhead; Exploded view plenum chamber partition panel.



Remove nuts -arrows- and bolt -1- and press catalytic converter (left-side) to side.



Remove coolant pipe on gearbox (left-side) ⇒ Rep. gr. 19; Coolant pipes; Removing and installing coolant pipes.

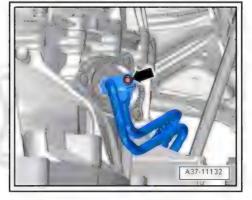




Note

Place a cloth below the connection to catch escaping ATF.

- Unscrew bolt -arrow- and detach ATF lines from gearbox.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



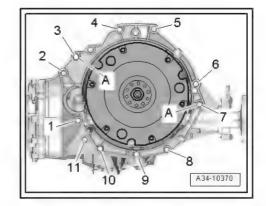
Remove nuts -arrows- and bolt -1- and press catalytic converter (right-side) to right side of vehicle.



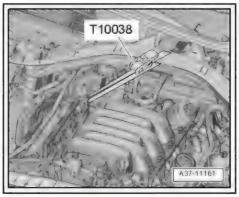
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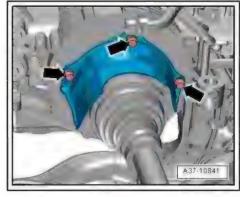
- Remove bolts -2 ... 5- securing gearbox to engine (accessible from above).
- Secure catalytic converter (right-side) loosely to exhaust manifold again with a nut to prevent it from dropping.



- Fit body brace in installation position and screw in bolts handtight.
- Secure engine with tensioning strap T10038- as shown in illustration.



- Remove bolts -arrows- and detach heat shield for drive shaft (right-side).
- Unbolt drive shafts (left and right) from flange shafts of gearbox ⇒ Running gear, axles, steering; Rep. gr. 40; Drive shaft; Removing and installing drive shaft.



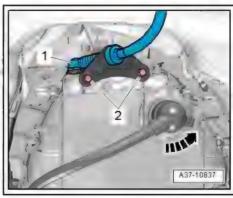
- Use removal lever 80 200- to press ball socket -1- on selector lever cable off gearbox selector lever.
- Remove bolts -2- for cable support bracket.
- Move selector lever cable clear.



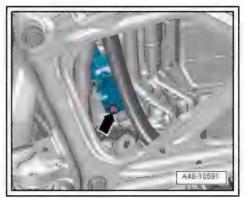
Caution

The gearbox control unit (mechatronic unit) can be damaged by electrostatic discharge.

- Before handling electrical connectors, mechanic must discharge static. To do so, touch an earthed metal object, such as a heater radiator or lifting platform, with your hand.
- Do not touch contact pins in gearbox connector with bare hands.
- Turn fastener anti-clockwise -arrow- and unplug electrical connector on gearbox.



Detach intermediate steering shaft from steering rack and telescope splines upwards ⇒ Running gear, axles, steering; Rep. gr. 48; Steering column; Removing and installing intermediate steering shaft.



Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40; Subframe; Removing and installing subframe cross brace.



Caution

Risk of damage to parts of the running gear.

- ♦ Do not let the vehicle down on the wheels if the gearbox mounting, steering rack or subframe cross brace are not properly installed.
- Unplug electrical connector -2- for engine speed sender G28and move wiring clear.

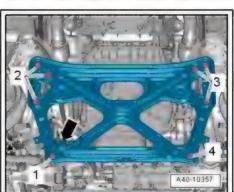


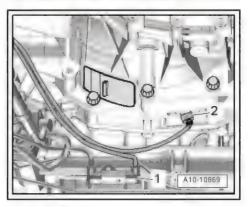
Note

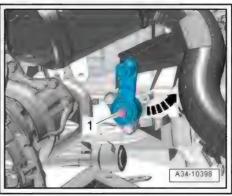
Disregard -item 1-.

Remove bolt -1-, press retainer (left-side) off gearbox and swivel back towards rear -arrow-.









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Note

Place a cloth underneath ATF cooler to catch escaping coolant.

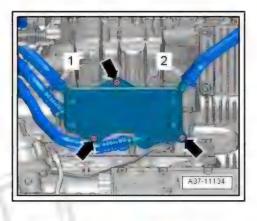
- Release hose clip -1- and detach coolant hose.
- Remove bolts -arrows- and detach ATF cooler.



Note

Disregard -item 2-.

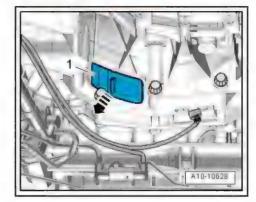
- Unplug electrical connector -2- for steering rack (to do so, push retainer towards rear -arrow- and press down release catch).
- Unplug electrical connector -1-.



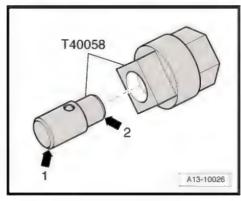


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- Pull cover -1- off bottom of gearbox -arrow-.



- Insert guide stud of adapter -T40058- as follows:
- The larger diameter -arrow 1- faces engine.
- The smaller diameter -arrow 2- faces adapter.

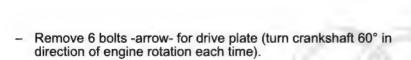


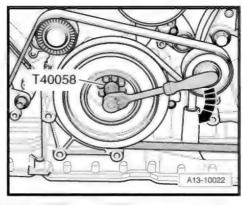
To slacken bolts for drive plate, counterhold crankshaft with adapter - T40058- at vibration damper.

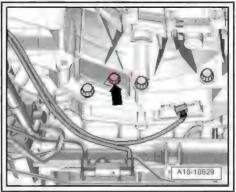


Note

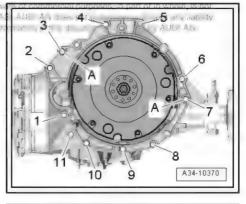
When you then turn the crankshaft, only turn crankshaft in direction of engine rotation -arrow-.



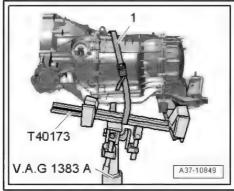




- Remove bolt -1- for starter.
- Detach starter from gearbox but do not remove starter.
- Unscrew remaining bolts -6 ... 11- securing engine to gearbox.



Position engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- underneath gearbox and secure with tensioning strap -1- as shown in illustration.







Note

For illustration purposes, the gearbox support - T40173- is not shown.

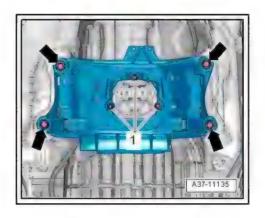
Remove bolts -arrows- for tunnel cross member.

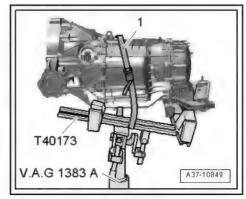


Note

Disregard -item 1-.

- Detach gearbox from engine and lower carefully using engine and gearbox jack - V.A.G 1383 A-.
- If necessary, lower engine slightly at the front by slackening tensioning strap -T10038- .



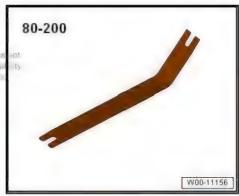


2.1.3 Removing gearbox - vehicles with 4-cylinder 2.0 ltr. TDI engine

Special tools and workshop equipment required

♦ Removal lever - 80 - 200-

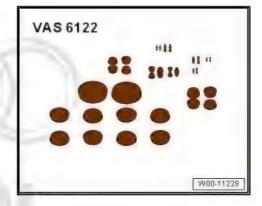
who settles makes titled notes to out the book of the ACL ACC.



◆ Engine and gearbox jack - V.A.G 1383 A-

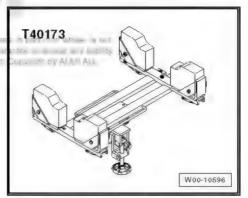


Engine bung set - VAS 6122-



Gearbox support - T40173-

Prote trait, cos as professional or or state of Although the time the schild matically primit



Removing

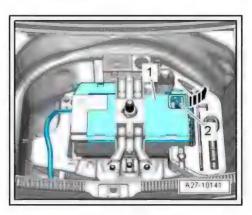
Bring front wheels into straight-ahead position.

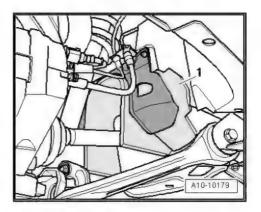


Caution

When disconnecting the battery there is a risk of irreparable damage to electronic components.

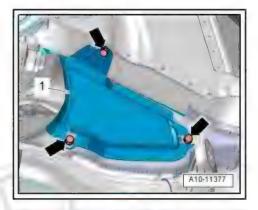
- Observe notes on procedure for disconnecting the battery.
- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27; Battery; Disconnecting and connecting battery.
- Remove front wheels ⇒ Running gear, axles, steering; Rep. gr. 44; Wheels, tyres.
- Remove cover -1- for drive shaft from wheel housing (both sides) ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Exploded view - noise insulation .



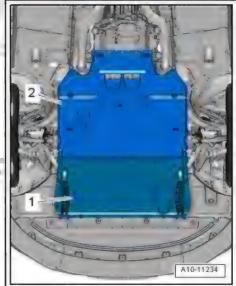




Remove bolts (left and right) -arrows- and detach heat shield

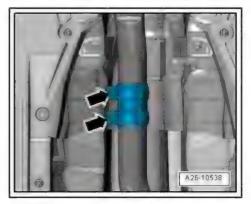


Remove noise insulation -1- and -2- ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Removing and installing noise insulation.

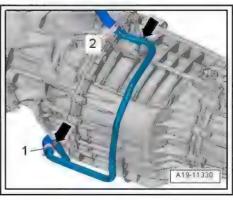


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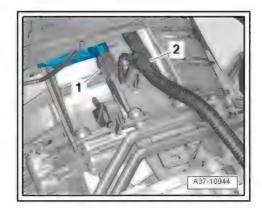
- Remove front silencer(s) \Rightarrow Rep. gr. 26; Exhaust pipes/silencers; Removing and installing front silencer.
- Drain coolant ⇒ Rep. gr. 19; Cooling system/coolant; Draining and filling cooling system.
- Remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50; Bulkhead; Exploded view - plenum chamber partition panel.



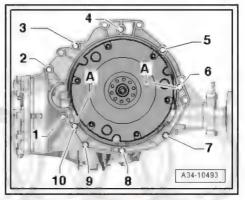
Remove coolant pipe on gearbox (left-side) ⇒ Rep. gr. 19; Coolant pipes; Removing and installing coolant pipes.



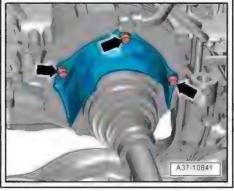
Remove electrical connector -1- from bracket and move clear wiring harness -2- using removal lever - 80 - 200- .



Remove bolts -2 ... 5- securing gearbox to engine (accessible from above).



- Remove bolts -arrows- and detach heat shield for drive shaft (right-side).
- Unbolt drive shafts (left and right) from flange shafts of gearbox ⇒ Running gear, axles, steering; Rep. gr. 40; Drive shaft; Removing and installing drive shaft.



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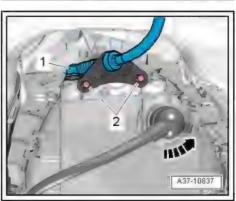
- Use removal lever 80 200- to press ball socket -1- on selector lever cable off gearbox selector lever.
- Remove bolts -2- for cable support bracket.
- Move selector lever cable clear.



Caution

The gearbox control unit (mechatronic unit) can be damaged by electrostatic discharge.

- Before handling electrical connectors, mechanic must discharge static. To do so, touch an earthed metal object, such as a heater radiator or lifting platform, with your hand.
- Do not touch contact pins in gearbox connector with bare hands.
- Turn fastener anti-clockwise -arrow-, unplug electrical connector on gearbox and move wiring clear.





Detach intermediate steering shaft from steering rack and telescope splines upwards ⇒ Running gear, axles, steering; Rep. gr. 48; Steering column; Removing and installing intermediate steering shaft.



Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40; Subframe; Removing and installing subframe cross brace.



Caution

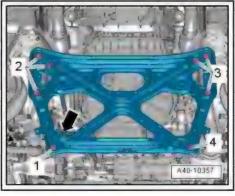
Risk of damage to parts of the running gear.

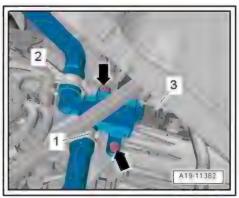
- Do not let the vehicle down on the wheels if the gearbox mounting, steering rack or subframe cross brace are not properly installed.
- Unplug electrical connector -3-.
- Release hose clip -2- and detach coolant hose.



Note

-Item 1- and -arrows- can be disregarded.







Note

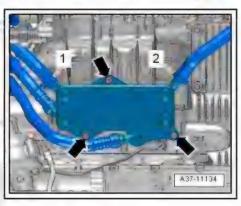
Place a cloth underneath ATF cooler to catch escaping coolant.

- Release hose clip -1- and detach coolant hose.
- Remove bolts -arrows-, detach ATF cooler and push ATF cooler to side.



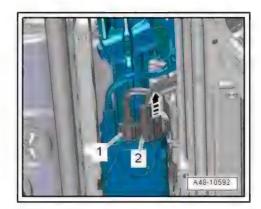
Note

Disregard -item 2-.

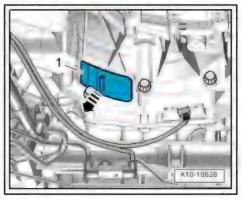


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- Unplug electrical connector -2- for steering rack (to do so, push retainer towards rear -arrow- and press down release catch).
- Unplug electrical connector -1-.



- Release electrical wiring for engine speed sender G28- at gearbox.
- Pull cover -1- off bottom of gearbox -arrow-.

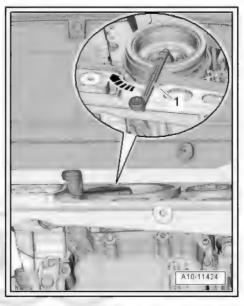


- Remove cap from vibration damper.
- To slacken bolts for drive plate, counterhold crankshaft with angled ring spanner -1- at central bolt on vibration damper.



Note

When you then turn the crankshaft, turn only in direction of engine rotation -arrow-.



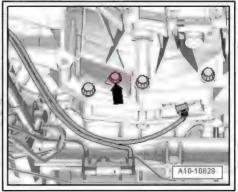
Remove 6 bolts -arrow- for drive plate (turn crankshaft 60° in direction of engine rotation each time).



Note

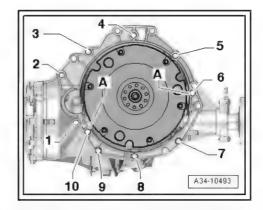
3 bolts on some versions.

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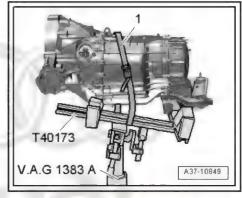




- Remove bolt -1- for starter.
- Detach starter from gearbox but do not remove starter.
- Unscrew remaining bolts -6 ... 10- securing engine to gearbox.



Position engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- underneath gearbox and secure with tensioning strap -1- as shown in illustration.





Note

For illustration purposes, the gearbox support T40173- is not shown.

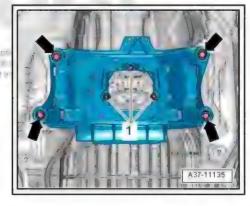
Remove bolts -arrows- for tunnel cross member.

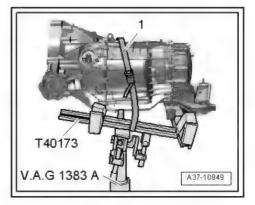


Note

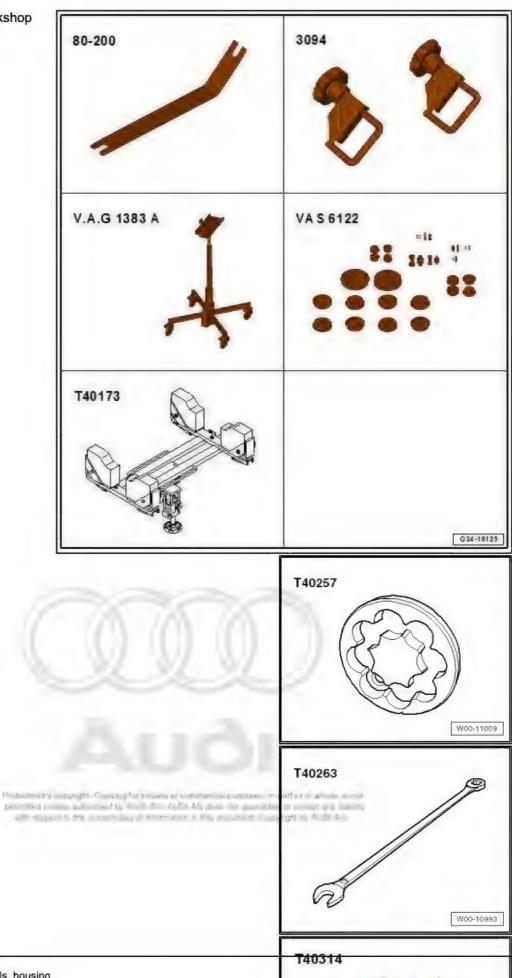
Disregard -item 1-.

Detach gearbox from engine and lower carefully using engine and gearbox jack - V.A.G 1383 A- .





2.1.4 Removing gearbox - vehicles with 6-cylinder 3.0 ltr. TDI engine Special tools and workshop equipment required





- Removal lever 80 200-
- Hose clamps, up to 25 mm 3094-
- Engine and gearbox jack V.A.G 1383 A-
- Engine bung set VAS 6122-
- Gearbox support T40173-
- Turning over tool T40257-
- Wrench 21 mm T40263-
- Adapter -T40314-
- Tensioning strap T10038-

Removing

Bring front wheels into straight-ahead position.



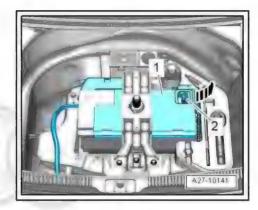
Caution

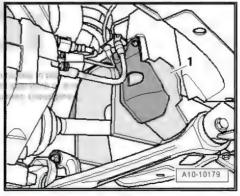
When disconnecting the battery there is a risk of irreparable damage to electronic components.

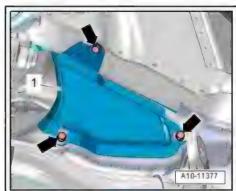
- Observe notes on procedure for disconnecting the battery.
- Disconnect earth wire -2- from battery terminal ⇒ Electrical system; Rep. gr. 27; Battery; Disconnecting and connecting battery .
- Remove front wheels ⇒ Running gear, axles, steering; Rep. gr. 44; Wheels, tyres.
- Remove cover -1- for drive shaft from wheel housing (both sides) ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Exploded view -noise insulation apying for private or

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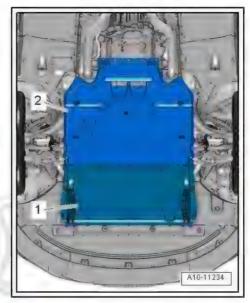
Remove bolts (left and right) -arrows- and detach heat shield





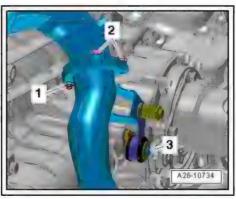


Remove noise insulation -1- and -2- ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Removing and installing noise insulation.

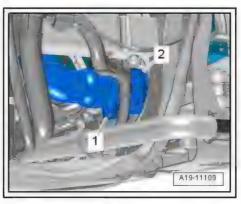


Remove particulate filter and front exhaust pipe ⇒ Rep. gr. 26; Exhaust pipes/silencers; Exploded view - silencers.





Drain coolant ⇒ Rep. gr. 19; Cooling system/coolant; Draining and filling cooling system.

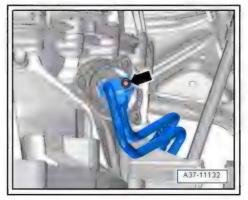




Note

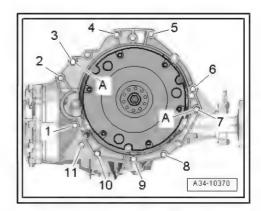
Place a cloth below the connection to catch escaping ATF.

- Unscrew bolt -arrow- and detach ATF lines from gearbox.
- Seal off open lines and connections with clean plugs from engine bung set VAS 6122- .

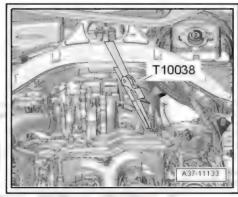




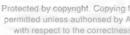
Remove bolts -2 ... 5- securing gearbox to engine (accessible from above).

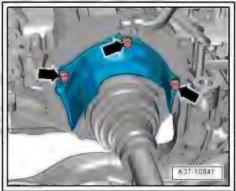


- Fit body brace in installation position and screw in bolts handtight.
- Secure engine with tensioning strap T10038- as shown in illustration.



- Remove bolts -arrows- and detach heat shield for drive shaft (right-side).
- Unbolt drive shafts (left and right) from flange shafts of gearbox ⇒ Running gear, axles, steering; Rep. gr. 40; Drive shaft; Removing and installing drive shaft.





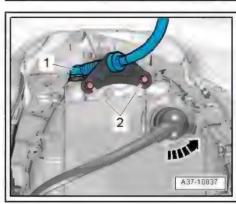
- Use removal lever 80 200- to press ball socket -1- on selector lever cable off gearbox selector lever.
- Remove bolts -2- for cable support bracket.
- Move selector lever cable clear.



Caution

The gearbox control unit (mechatronic unit) can be irreparably damaged by electrostatic discharge.

- Before handling electrical connectors, mechanic must discharge static. To do so, touch an earthed metal object, such as a heater radiator or lifting platform, with your hand.
- Do not touch contact pins in gearbox connector with bare hands.
- Turn fastener anti-clockwise -arrow- and unplug electrical connector on gearbox.



Detach intermediate steering shaft from steering rack and telescope splines upwards ⇒ Running gear, axles, steering; Rep. gr. 48; Steering column; Removing and installing intermediate steering shaft.

Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40; Subframe; Removing and installing subframe cross brace.



Caution

Risk of damage to parts of the running gear.

◆ Do not let the vehicle down on the wheels if the gearbox mounting, steering rack or subframe cross brace are not properly installed.



Note

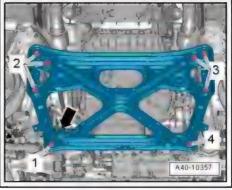
Place a cloth underneath ATF cooler to catch escaping coolant.

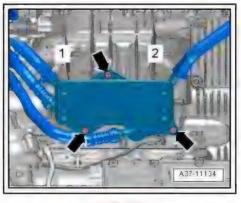
- Release hose clips -1 and 2- and disconnect coolant hoses.
- Remove bolts -arrows- and detach ATF cooler.

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- Unplug electrical connector -2- for steering rack (to do so, push retainer towards rear -arrow- and press down release catch).
- Unplug electrical connector -1-.



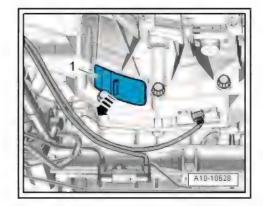








- Release electrical wiring for engine speed sender G28- at gearbox.
- Pull cover -1- off bottom of gearbox -arrow-.



- Fit tools together, as shown in illustration.
- Socket (21 mm) for 1/2" drive



To slacken bolts for dual-mass flywheel, counterhold crankshaft.



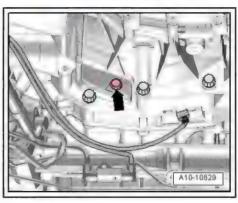
Note

When you then turn the crankshaft, only turn crankshaft in direction of engine rotation -arrow-... AS ALLIAN -- -- -- --

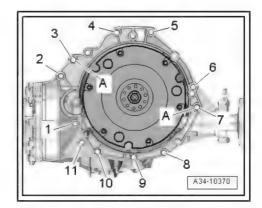
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T40257 T40314 T40263

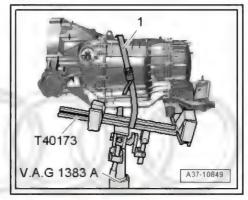
Remove 6 bolts -arrow- for drive plate (turn crankshaft 60° in direction of engine rotation each time).



- Remove bolt -1- for starter.
- Detach starter from gearbox but do not remove starter.
- Unscrew remaining bolts -6 ... 11- securing engine to gearbox.



Position engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- underneath gearbox and secure with tensioning strap -1- as shown in illustration.





Note

For illustration purposes, the gearbox support - T40173- is not shown.

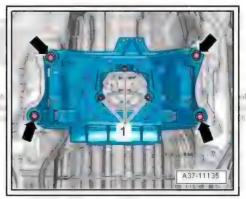
Remove bolts -arrows- for tunnel cross member.

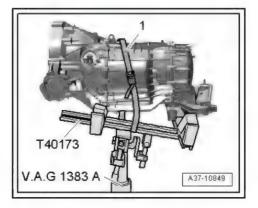


Note

Disregard -item 1-.

Detach gearbox from engine and lower carefully using engine and gearbox jack - V.A.G 1383 $\,\mathrm{A}\text{-}$.



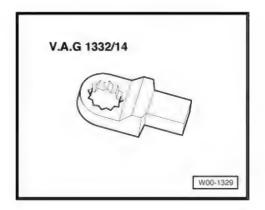


2.2 Installing gearbox

Special tools and workshop equipment required



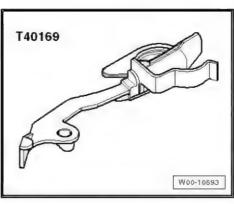
♦ Ring spanner insert, 16 mm - V.A.G 1332/14-



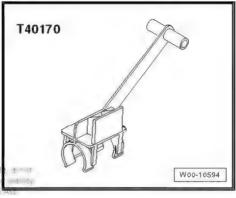
Counterhold tool - T10355- for vehicles with 4-cylinder 2.0 ltr. TFSI engine



Assembly aid - T40169-



♦ Transportation lock - T40170-





Procedure

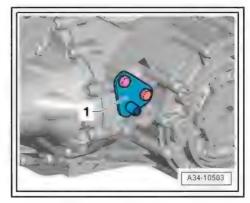


Note

- Renew bolts which are tightened by turning through a specified angle.
- Renew self-locking nuts and bolts, and seals, O-rings and gaskets.
- Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .
- Re-attach all cable ties at the same locations when re-installing.

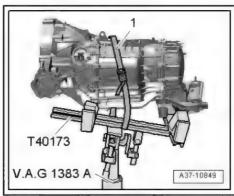
Tightening torques for installing gearbox ⇒ page 70

- Before fitting a replacement gearbox, always blow through the ATF cooler and ATF pipes/hoses with compressed air (not more than 10 bar) ⇒ page 86.
- Before installing, it is important to clean any residue from threads in cylinder block using a tap.
- When fitting a replacement gearbox: attach gearbox support, gearbox mounting and tunnel cross member to new gearbox
- Attach bracket -1- for exhaust system mounting to new gearbox ⇒ Rep. gr. 26; Exhaust pipes/silencers; Exploded view



Position gearbox on gearbox support - T40173- and secure with tensioning strap -1-, as shown in illustration.

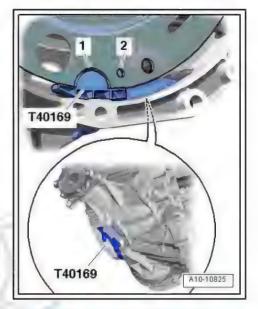




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- The following preparations must be made before joining the engine and gearbox:
- Insert assembly aid T40169- into gearbox housing and dualmass flywheel from below, as shown in illustration.

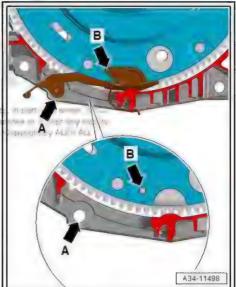


The assembly tool must engage in the semi-circular recess and in the hole (-arrow A- and -arrow B-).

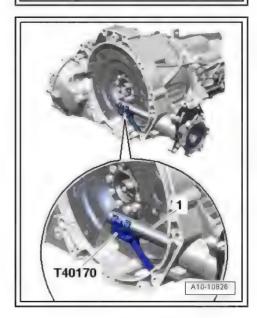


Note

There is only one inspection hole at the periphery; turn the dualmass flywheel accordingly protected by copyright. Copying for private or commercial purpo permitted unless authorised by AUDI AG. AUDI AG does not gu with respect to the correctness of information in this docume

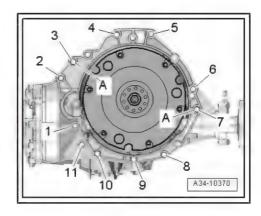


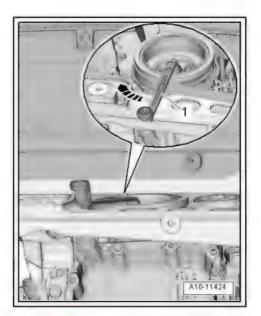
Insert transportation lock - T40170- into gearbox housing from below and clamp onto flange shaft -1-.



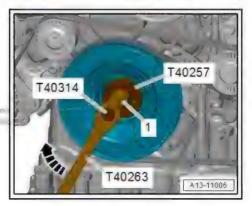
- Check that dowel sleeves -A- for centralising engine/gearbox are in the cylinder block; install any missing dowel sleeves.
- Check whether aluminium bolts for engine/gearbox connection can be reused and mark bolts if necessary ⇒ page 72.
- Join gearbox with engine and tighten bottom engine/gearbox securing bolts.
- Take out retainer T40170- (transport lock) and assembly aid - T40169- .
- Tighten bolts for tunnel cross member ⇒ page 73.
- Slacken tensioning strap and move engine and gearbox jack - V.A.G 1383 A- with gearbox support - T40173- out from underneath gearbox.
- Turn crankshaft at vibration damper 360° further in direction of engine rotation -arrow-.

Vehicles with 4-cylinder TDI engine:









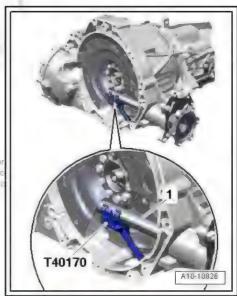
Vehicles with 4-cylinder TFSI engine:

Vehicles with 6-cylinder TDI engine

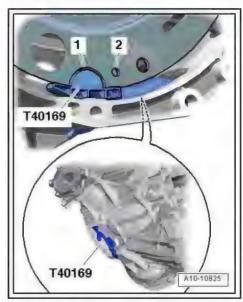
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Remove transportation lock - T40170-.

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Remove assembly aid - T40169-.





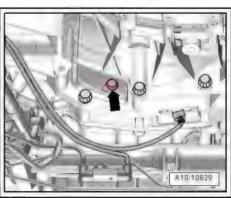
Note

Use ring spanner insert, 16 mm - V.A.G 1332/14-, to tighten bolts.

Secure flywheel to drive plate as follows:

Vehicles with 4-cylinder TFSI engine (three securing bolts)

- Tighten first bolt -arrow- to 10 Nm and loosen again; then tighten to 2 Nm (hand-tight).
- Using an angled ring spanner, turn crankshaft at vibration damper 120° further in direction of engine rotation.
- Screw in next bolt in this crankshaft position and tighten to 60 Nm.
- Turn crankshaft 120° further in direction of engine rotation, screw in next bolt and tighten to 60 Nm.
- Turn crankshaft 120° further in direction of engine rotation and tighten final bolt to 60 Nm.

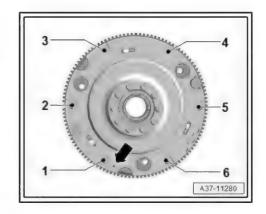


Vehicles with 6-cylinder or 4-cylinder TDI engine (six securing bolts)

- Tighten first bolt -1- to 10 Nm and loosen again; then tighten to 2 Nm (hand-tight).
- Turn crankshaft via vibration damper 180° further in direction of engine rotation, screw in bolt -4- and tighten to 60 Nm.
- Turn crankshaft 60° further in direction of engine rotation (for each bolt), screw in bolts -5- and -6- and tighten to 60 Nm.
- Turn crankshaft 60° further in direction of engine rotation and tighten bolt -1- to 60 Nm.
- Turn crankshaft 60° further in direction of engine rotation (for each bolt), screw in bolts -2- and -3- and tighten to 60 Nm.

Continued for all vehicles:

Remaining installation steps are carried out in reverse sequence; note the following:





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- Tighten remaining gearbox/engine securing bolts -3 ... 5-.
- Electrical connections and routing ⇒ Current flow diagrams, Electrical fault finding and Fitting locations.
- Install ATF cooler and ATF lines ⇒ page 78.
- Install subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40; Subframe; Exploded view - subframe.
- Secure intermediate steering shaft to steering rack ⇒ Running gear, axles, steering; Rep. gr. 48; Steering column; Removing and installing intermediate steering shaft.
- Install selector lever cable ⇒ page 23.
- Install drive shafts and heat shield for drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40; Drive shaft; Exploded view - drive shaft .
- Install plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50; Bulkhead; Exploded view - plenum chamber partition panel.
- Install exhaust system ⇒ Rep. gr. 26 ; Exhaust pipes/silencers; Exploded view - silencers .
- Install heat shield on subframe ⇒ General body repairs, exterior; Rep. gr. 66; Strips / trim panels / extensions; Exploded view - heat shield .
- Install covers for drive shafts and noise insulation ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Exploded view - noise insulation .
- Fit front wheels ⇒ Running gear, axles, steering; Rep. gr. 44; Wheels, tyres.
- Observe measures required after connecting battery ⇒ Electrical system; Rep. gr. 27; Battery; Disconnecting and connecting battery.



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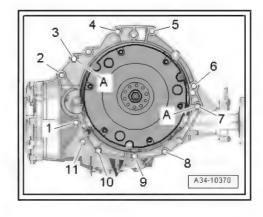
Overvoltage can cause irreparable damage to control units.

- Do not use charger for boost starting.
- Check selector lever cable and adjust if necessary ⇒ page 27 .
- Fill up with coolant ⇒ Rep. gr. 19; Cooling system/coolant; Draining and filling cooling system.
- Check ATF level and top up as required ⇒ page 87.
- After performing repair work on gearbox, check gear oil level in front final drive and top up if necessary > page 105.



Note

If renewing the gearbox, run the function "Replace control unit" in ⇒ Vehicle diagnostic tester.



2.3 Tightening torques for gearbox



Note

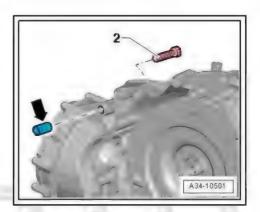
- ♦ Tightening torques apply only to lightly greased, oiled, phosphated or black-finished nuts and bolts.
- Additional lubricant such as engine or gear oil may be used, but do not use graphite lubricant.
- ◆ Do not use parts which have been degreased.
- ◆ Tolerance for tightening torques is ± 15 %.

Component		Nm
Bolts and nuts	M6	9
	M7	15
	M8	20
	M10	40
	M12	65
Dual-mass flywheel to drive plate		60 ¹⁾
1) Renew bolts.		



Note

On vehicles with 4-cylinder engine, bolt -2- secures the starter to the gearbox and has an additional spacer sleeve -arrow-.





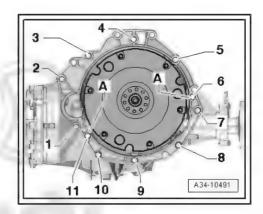


Attachment of multitronic 0AW, front-wheel drive to 4-cylinder 2.0 Itr. TFSI engine

Item	Bolt	Nm
1 ¹⁾	M10 x 50 ²⁾	65
2 ³⁾ , 7	M12 x 100 ⁴⁾	30 + 90°
3 ⁵⁾ , 6	M12 x 75 ⁴⁾	30 + 90°
4 5 ⁵⁾	M12 x 120 ⁴⁾	30 + 90°
8 10	M10 x 75 ⁴⁾	15 + 90°
11	M12 x 50 ⁴⁾	30 + 90°
Α	Dowel sleeves f	for centralising



- 2) Property class 10.9. The steel bolt can be re-used any number of times.
- 3) Also secures starter, with additional spacer sleeve between starter and gearbox.
- ⁴⁾ Aluminium bolts can be used twice only ⇒ page 72.
- 5) Also secures bracket for wiring.

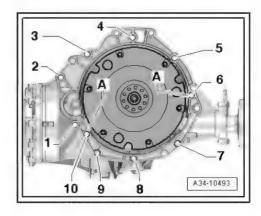


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Attachment of multitronic 0AW, front-wheel drive to 4-cylinder 2.0 Itr. TDI engine

Item	Bolt	Nm
11)	M10x50 ²⁾	65
23)	M12x100 ⁴⁾	30 + 90°
3 ⁵⁾ , 6	M12x75 ⁴⁾	30 + 90°
4, 5 ⁵⁾	M12x120 ⁴⁾	30 + 90°
7 9	M10x75 ⁴⁾	15 + 90°
10	M12x50 ⁴⁾	30 + 90°
Α	Dowel sleeves	for centralising

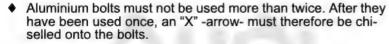
- 1) Also secures starter.
- 2) Property class 10.9; the steel bolt can be re-used any number of times.
- 3) Also secures starter, with additional spacer sleeve between starter and gearbox.
- 4) Aluminium bolts can be used twice only \Rightarrow page 72.
- 5) Also secures bracket for wiring.



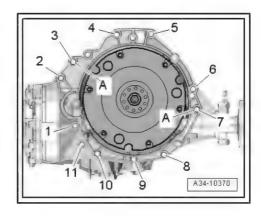
Attachment of multitronic 0AW, front-wheel drive to 6-cylinder 2.8 Itr. and 2.5 ltr. FSI engine and 6-cylinder 3.0 ltr. TDI engine

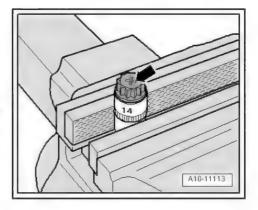
Item	Bolt	Nm
1 ¹⁾	M10x50 ²⁾	65
2 ³⁾ 6	M12x100 ⁴⁾	30 + 90°
7	M12x125 ⁴⁾	30 + 90°
8, 11	M10x60 ⁴⁾	15 + 90°
9, 10	M10x95 ⁴⁾	15 + 90°
Α	Dowel sleeves	for centralising

- 1) Also secures starter.
- ²⁾ Property class 10.9. The steel bolt can be re-used any number of times.
- 3) Also secures starter.
- 4) Aluminium bolts can be used twice only ⇒ page 72.



- To prevent damage to the bolts, they must not be clamped in a vice when marking them. Clamp a 14 mm socket with 1/2" drive in the vice instead, and insert the bolt into the socket, as shown in illustrationed by AUDI AG. AUDI AG does not guarantee or accept any lial 1,
- Bolts marked with an "X" must not be used again.





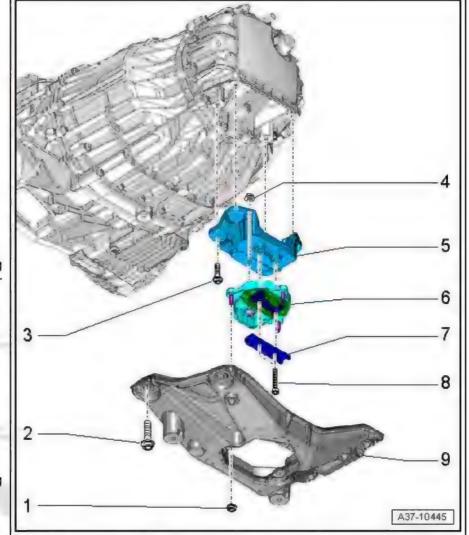


Assembly mountings 3

- ⇒ "3.1 Exploded view assembly mountings", page 73
- ⇒ "3.2 Removing and installing tunnel cross member", <u>page 73</u>

3.1 Exploded view - assembly mountings

- 1 Nut
 - □ 3x
 - □ 20 Nm
- 2 Bolt
 - □ 4x
 - ☐ 70 Nm
- 3 Bolt
 - □ 40 Nm
- 4 Nut
 - □ 4x
 - □ 20 Nm
- 5 Gearbox support
- 6 Gearbox mounting
 - Removing and installing ⇒ Rep. gr. 10; Assembly mountings; Remov-ing and installing gearbox mounting
- 7 Stop (bottom)
 - For gearbox mounting
- 8 Bolt
 - □ 2x
 - ☐ Renew
 - ☐ 20 Nm +90°
- 9 Tunnel cross member
 - Removing and installing ⇒ page 73



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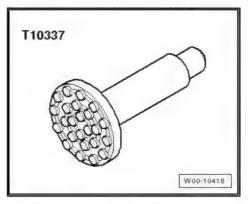
Removing and installing tunnel cross 3.2 member

Special tools and workshop equipment required

Engine and gearbox jack - V.A.G 1383 A-

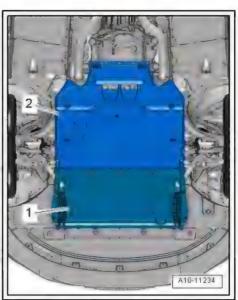


Gearbox support - T10337-



Removing

Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Removing and installing noise insulation.



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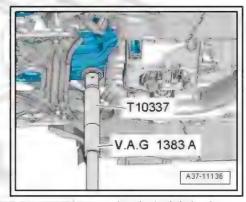
- Apply lifting column of engine and gearbox jack -V.A.G 1383 A- to gearbox from below (with gearbox support - T10337- attached).
- Raise gearbox slightly using engine and gearbox jack V.A.G 1383 A- .



WARNING

Risk of accident.

Engine and gearbox jack - V.A.G 1383 A- must remain in position when work is being carried out and must not be left unattended under the vehicle.



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Note

For illustration purposes, the gearbox support - T40173- is not shown.

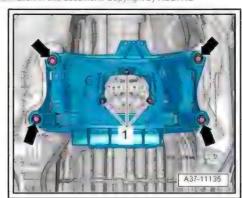
- Remove bolts -arrows-.
- Remove nuts -1- and detach tunnel cross member.

Installing

Installation is carried out in reverse sequence.

Tightening torques

- ♦ ⇒ "3.1 Exploded view assembly mountings", page 73.
- ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Exploded view - noise insulation



Transporting gearbox 4

Description of work sequence ⇒ Servicing multitronic 0AW; Rep. gr. 37; Transporting gearbox



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Securing to engine and gearbox sup-5 port

Description of work sequence ⇒ Servicing multitronic 0AW; Rep. gr. 37; Securing to engine and gearbox support



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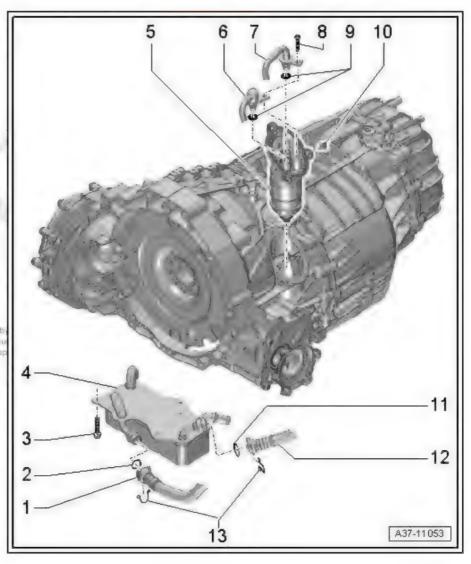
ATF circuit 6

- ⇒ "6.1 Exploded view ATF circuit", page 78
- ⇒ "6.2 Removing and installing ATF cooler", page 79
- ⇒ "6.3 Removing and installing ATF filter", page 82
- ⇒ "6.4 Removing and installing ATF lines", page 84

6.1 Exploded view - ATF circuit

ATF lines, ATF cooler and ATF filter

- 1 ATF pipe/hose assembly
 - □ Removing and installing
- 2 O-ring
 - □ Renew
 - □ Lightly lubricate with ATF before inserting
- 3 Bolt
 - □ 8 Nm
- 4 ATF cooler
 - Removing and installing ⇒ page 79
- 5 ATF filter
 - Check for cracks
 - Removing and installing ⇒ page 82
- 6 ATF pipe/hose assembly
 - Removing and installing ⇒ page 84
- 7 ATF pipe/hose assembly
 - Removing and installing ⇒ page 84
- 8 Bolt
 - □ 20 Nm
 - First push in ATF lines with new O-rings by hand as far as stop
- 9 O-rings
 - ☐ Renew
 - Lightly lubricate with ATF before inserting
- 10 Bolt
 - □ Renew
 - ☐ 5 Nm +90°
- 11 O-ring
 - □ Renew
 - Lightly lubricate with ATF before inserting
- 12 ATF pipe/hose assembly
 - □ Removing and installing ⇒ page 84





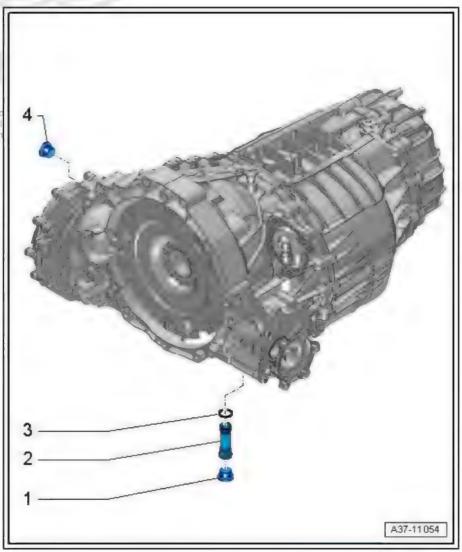
13 - Retaining clips

Filler and inspection plugs

- 1 ATF filler and inspection plug
 - Different versions have different ATF inspection plugs. Always select correct version according to gearbox code let-

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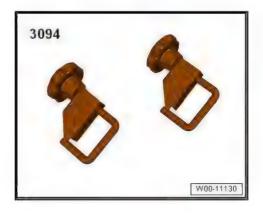
- ☐ Renew
- □ 30 Nm
- 2 ATF fluid level pipe
 - □ Always renew after removing
- 3 O-ring
 - Not available separately
 - Must be inserted fully in groove on fluid level pipe
- 4 Filler and inspection plug
 - ☐ For gear oil in front final drive
 - ☐ Renew
 - □ 30 Nm



6.2 Removing and installing ATF cooler

Special tools and workshop equipment required

♦ Hose clamps, up to 25 mm - 3094-



Engine bung set - VAS 6122-



VAS 6122 W00-11228

Hose clip pliers - VAS 6362-

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Used oil collection and extraction unit - VAS 6622A-





Removing



Note

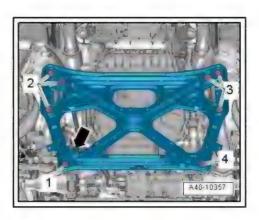
- Observe the general repair instructions ⇒ page 5.
- Rules for cleanliness when working on the automatic gearbox *⇒ page 5*
- Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40; Subframe; Removing and installing subframe cross brace.

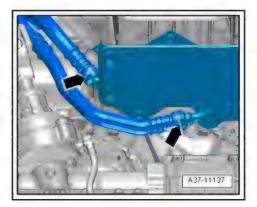


Caution

Risk of damage to parts of the running gear.

- ♦ Do not let the vehicle down on the wheels if the gearbox mounting, steering rack or subframe cross brace are not properly installed.
- Place used oil collection and extraction unit VAS 6622A- below gearbox.
- Pull off retaining clips -arrows- and disconnect ATF hoses.





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Note

Place a cloth underneath ATF cooler to catch escaping coolant.

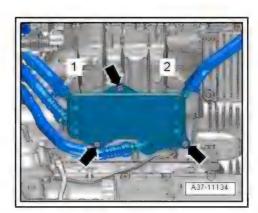
- Clamp off coolant hoses using hose clamps -3094-, release hose clips -1 and 2- and disconnect coolant hoses.
- Remove bolts -arrows- and detach ATF cooler.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



Caution

Remaining fluid:

There will still be small amounts of ATF and coolant in the ATF cooler.



d - (1 1) ... ttyAL.A.

Installing

Installation is carried out in reverse sequence; note the following:



Note

Secure all hose connections with the correct type of hose clips (same as original equipment) ⇒ Electronic parts catalogue .



Caution

Risk of damage to gearbox

- All plugs inserted in ATF lines and gearbox when dismantling must be removed.
- If you forget to remove the plugs, the ATF cooling will be ineffective and the gearbox will be damaged his d
- Fill up with coolant ⇒ Rep. gr. 19; Cooling system/coolant; Draining and filling cooling system.
- Check ATF level and top up as required ⇒ page 87.

Tightening torques

- ⇒ "6.1 Exploded view ATF circuit", page 78
- Cross brace ⇒ Running gear, axles, steering; Rep. gr. 40; Subframe; Exploded view - subframe

6.3 Removing and installing ATF filter



Note

On vehicles with 2.5 ltr. FSI and 2.8 ltr. FSI engines, the gearbox has to be removed in order to remove the ATF filter ⇒ page 41.

Special tools and workshop equipment required



Engine bung set - VAS 6122-



◆ Used oil collection and extraction unit - VAS 6622A-

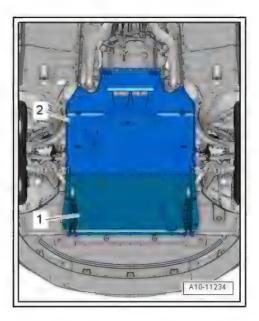


Removing

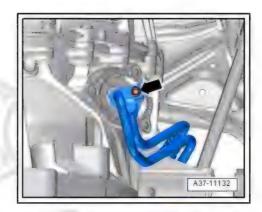


Note

- Observe the general repair instructions ⇒ page 5.
- Rules for cleanliness when working on the automatic gearbox ⇒ page 5 1 / 11. A / A :
- ♦ Before fitting a replacement gearbox, always blow through the ATF pipes/hoses and ATF cooler with compressed air (not more than 10 bar) ⇒ page 86.
- Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Removing and installing noise insulation.
- Vehicles with 6-cyl. petrol engine: Remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - bulkhead .



- Place used oil collection and extraction unit VAS 6622A- below gearbox.
- Unscrew bolt -arrow-, detach ATF lines from ATF filter and tie up ATF lines.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .



Remove bolts -arrows- and lift out ATF filter -1-. Installing

Installation is carried out in reverse sequence; note the following:



Note

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Check ATF filter for cracks and renew if necessary.

First insert ATF filter into gearbox by hand as far as stop, then secure with bolts.



Caution

Risk of damage to gearbox

- All plugs inserted in ATF lines and gearbox when dismantling must be removed.
- If you forget to remove the plugs, the ATF cooling will be ineffective and the gearbox will be damaged.
- Check ATF level and top up as required ⇒ page 87.

Tightening torques

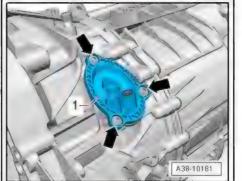
- ⇒ "6.1 Exploded view ATF circuit", page 78
- ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Exploded view - noise insulation

6.4 Removing and installing ATF lines

Special tools and workshop equipment required

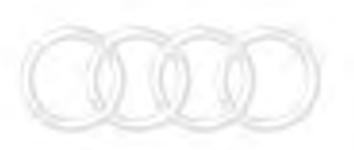
◆ Engine bung set - VAS 6122-

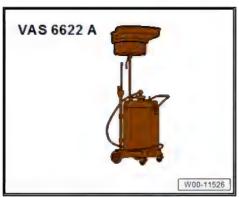






Used oil collection and extraction unit - VAS 6622A-





- ♦ Hose, approx. 18 mm dia.
- Compressed-air gun (commercially available)
- Safety goggles

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Note

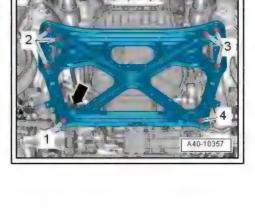
- Observe the general repair instructions ⇒ page 5.
- Rules for cleanliness when working on the automatic gearbox *⇒ page 5*
- Remove subframe cross brace ⇒ Running gear, axles, steering; Rep. gr. 40; Subframe; Removing and installing subframe cross brace.

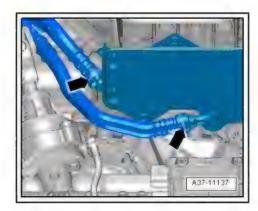


Caution

Risk of damage to parts of the running gear.

- ◆ Do not let the vehicle down on the wheels if the gearbox mounting, steering rack or subframe cross brace are not properly installed.
- Place used oil collection and extraction unit VAS 6622A- below gearbox.
- Pull off retaining clips -arrows- and disconnect ATF hoses.
- Vehicles with 6-cyl. petrol engine: Remove plenum chamber partition panel ⇒ General body repairs, exterior; Rep. gr. 50 ; Bulkhead; Exploded view - bulkhead .





- Unscrew bolt -arrow- and detach ATF lines from ATF filter.
- Seal off open lines and connections with clean plugs from engine bung set - VAS 6122- .

Installation is carried out in reverse sequence; note the following:



Note

Renew O-rings.

- Lightly lubricate O-ring with ATF before fitting.
- Push in ATF lines with new O-rings by hand as far as stop.



Caution

Risk of damage to gearbox

- All plugs inserted in ATF lines and gearbox when dismantling must be removed.
- If you forget to remove the plugs, the ATF cooling will be ineffective and the gearbox will be damaged.
- Check ATF level and top up as required ⇒ page 87.

Cleaning



Note

Rules for cleanliness when working on the automatic gearbox

Before fitting a replacement gearbox, always blow through the ATF cooler and ATF pipes/hoses with compressed air (not more than 10 bar) ⇒ page 86.



WARNING

Risk of eye injury.

- Put on safety goggles.
- Place used oil collection and extraction unit VAS 6622A- below connections.

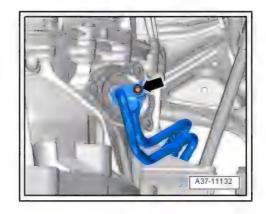


Note

If the ATF which emerges during cleaning is very dirty, the ATF cooler and the ATF pipes/hoses must additionally be flushed out with clean ATF.

Tightening torques

- ⇒ "6.1 Exploded view ATF circuit", page 78
- Cross brace ⇒ Running gear, axles, steering; Rep. gr. 40; Subframe; Exploded view - subframe



paratriciate in other application in afformation shot

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7 **ATF**

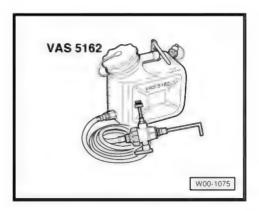
⇒ "7.1 Checking ATF level", page 87

⇒ "7.2 Draining and filling ATF", page 93

Checking ATF level 7.1

Special tools and workshop equipment required

- ♦ Vehicle diagnostic tester
- ♦ ATF charging device for CVT gearboxes VAS 5162-



◆ Used oil collection and extraction unit - VAS 6622A-



Safety goggles

Probability property products which means a particle of the probability of the M - M whespeth he be he of the or in a proff, proff, AND A'.

Preparations



Note

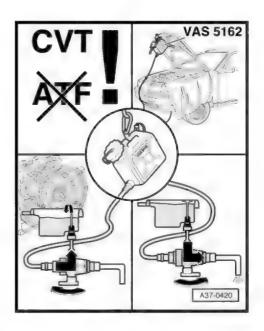
- The illustration on the reservoir of the ATF charging device for CVT gearboxes - VAS 5162- displays a warning (as in the top left corner) to use ONLY the ATF specially formulated for the multitronic gearbox.
- The illustration also shows the steps to follow when filling up; these are also described below.



Caution

Risk of damage to gearbox

- The engine must not be started if only a little or no ATF remains in gearbox after repair work or after excessive ATF leakage.
- In this case you need to fill the gearbox first with 5.5 ... 7 litres of ATF.



Test conditions

- Gearbox must not be in emergency running (backup) mode.
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Selector lever in "P".
- Parking brake button must be pulled up to apply the electromechanical parking brake.
- Extractor hose(s) of an exhaust gas extractor (switched on) must be connected.
- Air conditioner and heating switched off.
- Vehicle diagnostic tester is connected.
- The ATF temperature must not be higher than 30 °C at the beginning of the test. If the temperature is higher, allow the gearbox to cool down before proceeding.



Note

- The ATF temperature is taken from the reading on the vehicle diagnostic tester .
- ATF level will change depending on ATF temperature.
- If ATF level is checked when ATF temperature is too low, this will lead to overfilling.
- If ATF level is checked when ATF temperature is too high, this will lead to underfilling.
- Both overfilling and underfilling will impair the function of the gearbox.



Checking and correcting ATF level



Note

The ATF filler and inspection plug must be renewed.

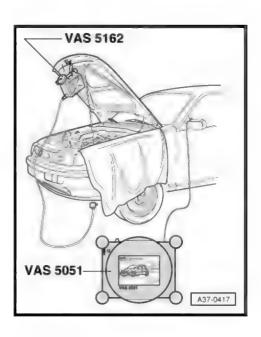
- Using the diagnostic tester in Guided Fault Finding mode, go to "Function/Component Selection" and select the following menu items:
- Drive system
- 0AW gearbox copy of the Copy of the traction
- 01 Self-diagnosis compatible systems
- 02 Gearbox electronics
- 02 Gearbox electronics, Functions
- 02 Measured values
- Select the value for Gearbox oil temperature (ATF) from the menu.
- Read off ATF temperature.



Caution

Risk of damage to gearbox

- ♦ Select the correct type of ATF ⇒ Electronic parts catalogue. Only the ATF available as a replacement part for "multitronic 0AW, front-wheel drive" may be used in this gearbox.
- ◆ The ATF must NOT be mixed with other types of ATF, even in small quantities. Otherwise this could cause malfunctions and/or failure of the gearbox.
- The ATF charging device must be clean and the ATF must not be mixed with other types of lubricant!
- Fill reservoir of ATF charging device for CVT gearboxes VAS 5162- with ATF for "multitronic 0AW, front-wheel drive"; ATF specification > Electronic parts catalogue.
- Secure reservoir for ATF filling unit as high as possible on vehicle.
- The stopcock on ATF charging device for CVT gearboxes -VAS 5162- must be closed.



Remove O-ring -1- at connection -2- on ATF charging device for CVT gearboxes - VAS 5162- .



Caution

There is a risk of filling the gearbox incorrectly.

- The connection -2- must be screwed hand-tight all the way into the ATF inspection hole on the gearbox with the Oring removed.
- The O-ring must be removed at the connection -2- so that the fluid level pipe in the inspection hole can be pressed into the upper position.
- Only then can the ATF level be checked and topped up to the maximum correctly.
- Engine idling.
- Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Removing and installing noise insulation.



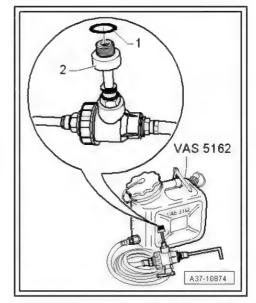
Note

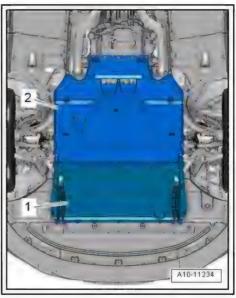
- Rev engine up to approx. 2500 rpm immediately after starting.
- The engine must be revved up to vent air from the ATF pump.
- The ATF cannot be topped up to the correct level if the engine is not run at increased speed as described.
- Start engine with selector lever in position "P".
- Press accelerator pedal to rev engine briefly up to 2500 rpm.
- With brake pedal depressed, move selector lever to positions "R" and "D/S" alternately (leave for approx. two seconds in each position with engine running at idling speed).
- Repeat procedure three times.



Note

- The ATF level can be checked at the ATF inspection plug.
- The ATF level is correct if a small amount of fluid comes out at the ATF inspection plug when ATF temperature is between 35°C and 45°C, or 50°C in hot climates (the fluid level rises due to expansion as it warms up).









Place used oil collection and extraction unit - VAS 6622A- below gearbox.



WARNING

Risk of eye injury.

- Put on safety goggles.
- When the ATF has reached a temperature of 35°C, unscrew ATF inspection plug -A-.



Note

- When the plug is opened, approx. 5 to 10 cl of ATF will always run out of the internal fluid level pipe.
- Always adhere to waste disposal regulations.
- With O-ring removed, screw connection of ATF charging device for CVT gearboxes - VAS 5162- hand-tight all the way into threaded hole for ATF inspection plug.
- This will push the fluid level pipe into the correct (top) installation position.
- Check ATF level by turning stopcock in direction of drain pipe

At 35 °C, there should be a flow of ATF from the inspection hole (strong at first, then steady).

- Wait until only a small amount of ATF can be seen emerging.
- Tighten new ATF inspection plug



Note

Different versions have ATF inspection plugs of different lengths. Always select correct version according to gearbox code letters in ⇒ Electronic parts catalogue . To prevent damage to the gearbox, please check the new ATF inspection plug by comparing it with the old one.

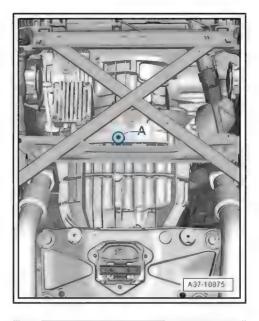


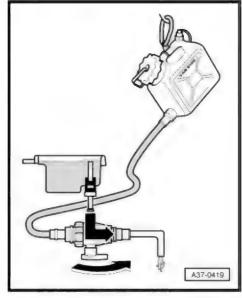
Note

- ATF inspection plug must be screwed in again at the latest when ATF reaches temperature of 45 °C (countries with hot climates: 50 °C).
- ♦ If ATF temperature exceeds 45 °C, too much fluid will escape as it expands when heated. In this case the quantity of fluid in the gearbox is NOT sufficient!

The ATF level check is now completed.

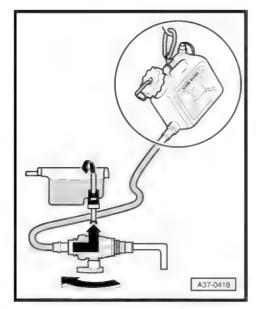
If no ATF (or only a few drops) has emerged from the inspection hole by the time the temperature has reached 40 °C, top up ATF ⇒ page 92 .





Filling up ATF

- Engine keeps running at idle speed.
- Turn stopcock in direction of filling hose -lower arrow-. ATF flows into gearbox.



Check ATF level by turning stopcock in direction of drain pipe -lower arrow-.



Note

Approx. 5 to 10 cl of ATF will always run out of internal fluid level pipe.

If no additional ATF emerges, turn stopcock back in direction of filler hose and allow some more ATF to flow into gearbox; check ATF level repeatedly.

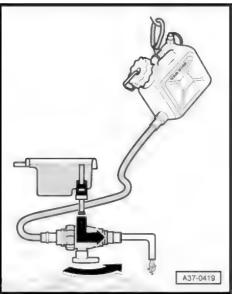
At 35 °C, there should be a flow of ATF from the inspection hole (strong at first, then steady); repeat filling procedure if necessary.

- Wait until only a small amount of ATF can be seen emerging.
- Once correct ATF level has been reached, disconnect ATF charging device for CVT gearboxes - VAS 5162- again.



Note

ATF will continue to flow after the connection has been removed.



riggers application where say



Tighten new ATF inspection plug -A-.



Note

Different versions have ATF inspection plugs of different lengths. Always select correct version according to gearbox code letters in ⇒ Electronic parts catalogue. To prevent damage to the gearbox, please check the new ATF inspection plug by comparing it with the old one.



Note

- ♦ ATF inspection plug must be screwed in again at the latest when ATF reaches temperature of 45 °C (countries with hot climates: 50 °C).
- ♦ If ATF temperature exceeds 45 °C, too much fluid will escape as it expands when heated. In this case the quantity of fluid in the gearbox is NOT sufficient!



- ⇒ Item 1 (page 79)
- ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Exploded view - noise insulation

7.2 Draining and filling ATF

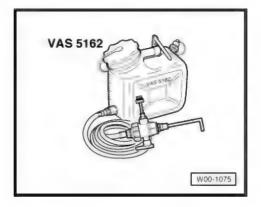
Special tools and workshop equipment required

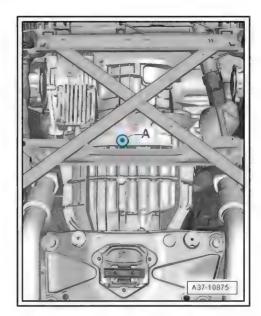
♦ Hook - 3438-



ATF charging device for CVT gearboxes - VAS 5162-









Used oil collection and extraction unit - VAS 6622A-



Safety goggles

Draining ATF



Note

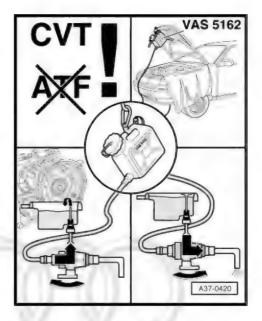
- The illustration on the reservoir of the ATF charging device for CVT gearboxes - VAS 5162- displays a warning in the top left corner to use ONLY the ATF specially formulated for CVT gearboxes.
- The illustration also shows the steps to follow when filling up; these are also described below.



Caution

Risk of damage to gearbox

- ♦ The engine must not be started if only a little or no ATF remains in gearbox after repair work or after excessive ATF leakage.
- Do not run the engine or tow the vehicle when there is no ATF in the gearbox.
- In this case you need to fill the gearbox first with 5.5 ... 7 litres of ATF.



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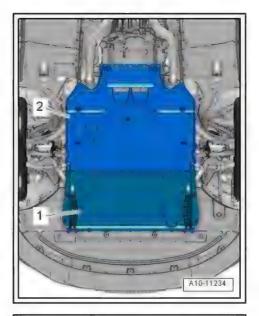
Note

The ATF inspection plug and the fluid level pipe must be renewed.

- Engine not running.
- Parking brake button must be pulled up to apply the electromechanical parking brake.
- Selector lever in "P".



Remove rear noise insulation -2- ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Removing and installing noise insulation.



Place used oil collection and extraction unit - VAS 6622A- below gearbox.



WARNING

Risk of eye injury.

- Put on safety goggles.
- Unscrew ATF inspection plug -A-.
- Drain ATF.



Note

Always adhere to waste disposal regulations.

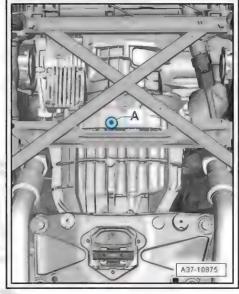
Pull fluid level pipe -A- out of ATF inspection hole using hook - 3438- and allow remaining ATF to drain off.

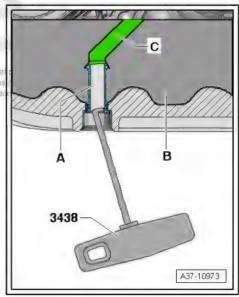


Note

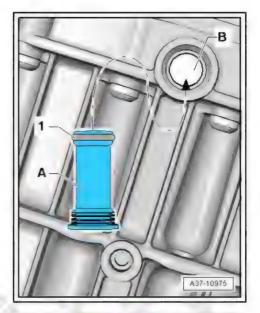
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Illustration shows sectional view from side. the correctne





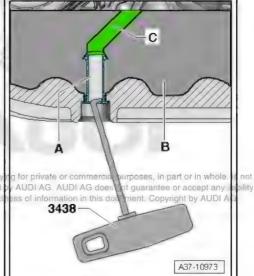
- O-ring -1- must be correctly fitted in groove on fluid level pipe
- Carefully press new fluid level pipe into ATF inspection hole -B-, taking care to keep it straight.





Note

- O-ring on fluid level pipe -A- provides seal between this pipe and fluid level pipe -C-. Only then can the ATF level be topped up correctly.
- Disregard -3438- .







Filling gearbox with ATF



Note

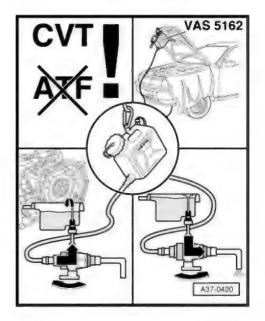
- The illustration on the reservoir of the ATF charging device for CVT gearboxes - VAS 5162- displays a warning in the top left corner to use ONLY the ATF specially formulated for CVT gearboxes.
- The illustration also shows the steps to follow when filling up; these are also described below.



Caution

Risk of damage to gearbox

- Select the correct type of ATF ⇒ Electronic parts catalogue . Only the ATF available as a replacement part for "multitronic OAW, front-wheel drive" may be used in this gearbox.
- The ATF must NOT be mixed with other types of ATF, even in small quantities. Otherwise this could cause malfunctions and/or failure of the gearbox.
- The ATF charging device must be clean and the ATF must not be mixed with other types of lubricant!





Note

Before fitting a replacement gearbox, always blow through the ATF cooler and ATF pipes/hoses with compressed air (not more than 10 bar) ⇒ page 86.

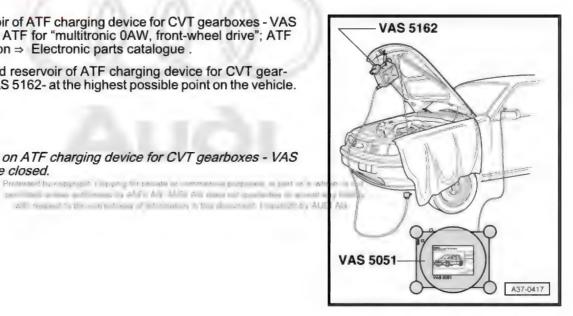
- Fill reservoir of ATF charging device for CVT gearboxes VAS 5162- with ATF for "multitronic 0AW, front-wheel drive"; ATF specification ⇒ Electronic parts catalogue .
- Attach filled reservoir of ATF charging device for CVT gearboxes - VAS 5162- at the highest possible point on the vehicle.



Note

The stopcock on ATF charging device for CVT gearboxes - VAS 5162- must be closed.

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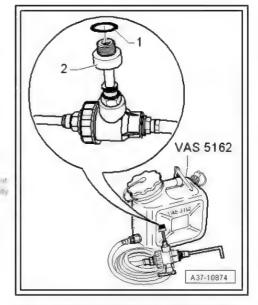
Remove O-ring -1- at connection -2- on ATF charging device for CVT gearboxes - VAS 5162-



Caution

There is a risk of filling the gearbox incorrectly.

- The connection -2- must be screwed hand-tight all the way into the inspection hole on the gearbox with the O-ring removed.
- The O-ring must be removed at the connection -2- so that the fluid level pipe in the inspection hale can be pressed into the upper position.
- Only then can the ATF level be checked and topped up to the maximum correctly.



- With O-ring removed, screw connection of ATF charging device for CVT gearboxes - VAS 5162- hand-tight all the way into threaded hole for ATF inspection plug.
- This will push the fluid level pipe into the correct (top) installation position.
- Turn stopcock in direction of filling hose -lower arrow-. ATF flows into gearbox.
- Fill gearbox with at least 5.5 ... 7 ltr. of fresh ATF.



Caution

Rev engine up to approx. 2500 rpm immediately after starting.

- The engine must be revved up to vent air from the ATF pump after performing repairs on the gearbox.
- If the engine is not revved up, the pump will run briefly without ATF and may be damaged.
- Start engine with selector lever in position "P".
- Press accelerator pedal to rev engine briefly up to 2500 rpm.
- Check ATF level and top up as required ⇒ page 87.

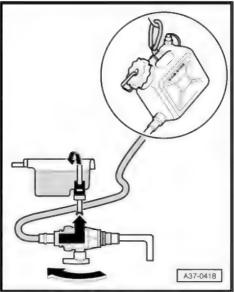


Note

Observe all notes and test requirements for "Checking and correcting ATF level".

Tightening torques

- ⇒ Item 1 (page 79)
- ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Exploded view - noise insulation





38 - Gears, control

1 Dismantling and assembling gearbox

1.1 Exploded view - dual-mass flywheel

Exploded view - dual-mass flywheel ⇒ Servicing multitronic 0AW; Rep. gr. 38; Dismantling and assembling gearbox

1.2 Exploded view - gearbox control system



Caution

Risk of damage to gearbox

- ◆ Do not run engine or tow vehicle with end cover removed or when there is no ATF in the gearbox.
- 1 Gearbox
- 2 Axial sealing element, small
 - Renew
- 3 Axial sealing element, large
 - ☐ Renew
- 4 Roller
- 5 Lever for selector shaft de-
- 6 Spring
- 7 Seal
 - For connector on automatic gearbox control unit - J217*
- 8 Bolt
 - □ Tightening torque ⇒ Servicing multitronic 0AW; Rep. gr. 38; Dismantling and assembling gearbox
- 9 End cover
 - stalling end cover", page 100
- 10 Gasket
 - □ Renew
- 11 Bolt
 - Tightening torque ⇒ Servicing multitronic 0AW; Rep. gr. 38; Dismantling and assembling gearbox
- 11 9 14 13 A38-10192
- 12 Automatic gearbox control unit J217-
 - □ ⇒ "5.2 Removing and installing gearbox control unit", page 117

- 13 Bolt
 - □ Tightening torque ⇒ Servicing multitronic 0AW; Rep. gr. 38; Dismantling and assembling gearbox
- 14 Hydraulic control unit
 - ⇒ "5.3 Removing and installing hydraulic control unit", page 117

1.3 Removing and installing dual-mass flywheel

Description of work sequence ⇒ Servicing multitronic 0AW; Rep. gr. 38; Dismantling and assembling gearbox

1.4 Removing and installing end cover

Special tools and workshop equipment required

Removal lever - 80 - 200-



Used oil collection and extraction unit - VAS 6622A-



Removing

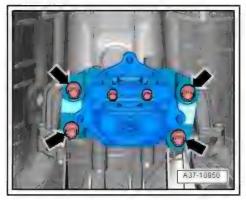


Note

- Observe the general repair instructions ⇒ page 5.
- Rules for cleanliness when working on the automatic gearbox ⇒ page 5
- Move selector lever to position "P".
- Drain ATF ⇒ page 93.
- Remove tunnel cross member ⇒ page 73.



Remove bolts -arrows- and detach gearbox support from gearbox together with gearbox mounting.



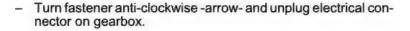
- Use removal lever 80 200- to press ball socket -1- on selector lever cable off gearbox selector lever.
- Remove bolts -2- for cable support bracket.



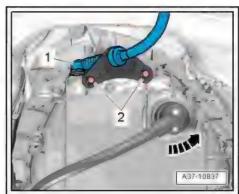
Caution

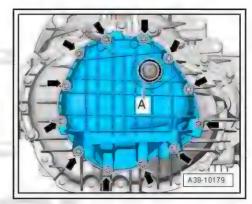
The gearbox control unit (mechatronic unit) can be irreparably damaged by electrostatic discharge.

- Before handling electrical connectors, mechanic must discharge static. To do so, touch an earthed metal object, such as a heater radiator or lifting platform, with your hand.
- Do not touch contact pins in gearbox connector with bare hands.



- Place used oil collection and extraction unit VAS 6622A- below gearbox.
- Remove bolts -arrows- and take off end cover.





Installing

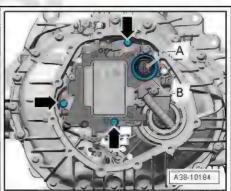
Installation is carried out in reverse sequence; note the following:

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Note

- Renew seals, gaskets and axial sealing elements.
- Renew bolts which are tightened by turning through a specified angle.
- Do not touch pins in connector -A- with bare hands.
- Slide new seal -B- onto connector -A- of automatic gearbox control unit - J217-, with twin lips facing outwards.



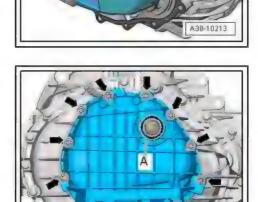
- If fitted, attach displacer plate -A- to automatic gearbox control unit - J217- .
- Clean sealing surfaces on gearbox housing and end cover.
- Dowel sleeves in gearbox housing or end cover must be refitted in same places.
- Place new gasket for end cover onto gearbox housing.

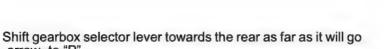


Note

Make sure dowel sleeves are correctly seated.

- Fit end cover and make sure that gasket does not move out of position.
- Check installation position of seal -A-:
- Seal must be flush fitted (the sealing lips must not be kinked).
- Screw in new bolts -arrows- in diagonal sequence until handtight and then tighten to specified torque.







Note

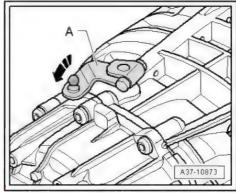
-arrow- to "P".

Towards the rear means opposite to direction of travel.

- Install support bracket for selector lever cable ⇒ page 15.
- Install gearbox support and tunnel cross member ⇒ page 73.
- Fill up with ATF ⇒ page 93.

Tightening torques

⇒ "1.2 Exploded view - gearbox control system", page 99



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39 - Final drive - differential

Final drive

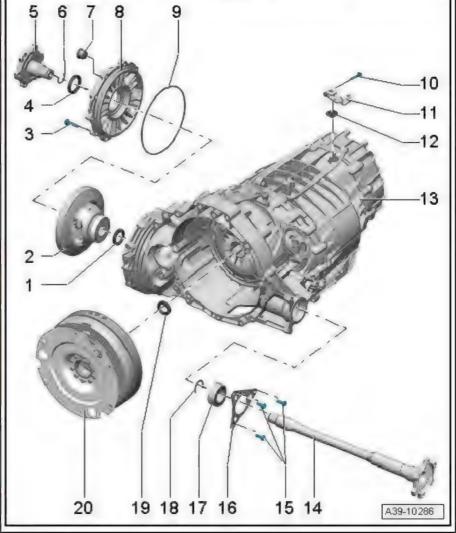
⇒ "1.1 Exploded view - final drive", page 103

Exploded view - final drive



Note

- ⇒ "3.3 General repair instructions", page 5
- ⇒ "3.1 Rules for cleanliness", page 5
- 1 Oil seal
 - □ For flange shaft (leftside)
 - ⇒ "3.2 Renewing oil seal (left-side)", page 109
- 2 Differential
- 3 Bolt
 - □ Tightening torque ⇒ Servicing multitronic 0AW; Rep. gr. 39; Final drive; Exploded view - final drive
- 4 Oil seal
 - ☐ For flange shaft (rightside)
 - ⇒ "3.3 Renewing oil seal (right-side)", page 110
- 5 Flange shaft (right-side)
 - □ ⇒ "4.2 Removing and installing flange shaft (right-side)", page 111
- 6 Circlip
 - □ Renewing ⇒ page 111
- 7 Filler and inspection plug
 - For gear oil in front final drive
 - □ Tightening torque ⇒ Item 4 (page 79)
- 8 Cover for front final drive
 - Pay attention to dowel sleeves
 - Can only be removed and installed with gearbox removed from vehicle ⇒ Servicing multitronic 0AW; Rep. gr. 39; Oil seals; Renewing oil seal (left-side)
 - ☐ Pre-fill after removing cover for front final drive ⇒ page 106
- 9 O-ring
 - On cover for front final drive
 - □ Renew



1	XX	X	1
	V V	12	1
		2	

10 - B	solt
	Tightening torque ⇒ Servicing multitronic 0AW; Rep. gr. 39 ; Final drive; Exploded view - final drive
11 - G	Searbox selector lever
12 - O	Dil seal
	For selector shaft
	Renewing ⇒ Servicing multitronic 0AW; Rep. gr. 39 ; Oil seals; Overview of fitting locations - oil seals
13 - G	Gearbox
14 - F	lange shaft (left-side)
	⇒ "4.1 Removing and installing flange shaft (left-side)", page 111
15 - B	solt
	Tightening torque ⇒ Servicing multitronic 0AW; Rep. gr. 39 ; Final drive; Exploded view - final drive
16 - M	flounting bracket
	Can only be removed and installed with gearbox removed from vehicle ⇒ Servicing multitronic 0AW; Rep. gr. 39; Differential
17 - B	all bearing
	For flange shaft (left-side)
	Can only be removed and installed with gearbox removed from vehicle ⇒ Servicing multitronic 0AW; Rep. gr. 39; Differential
18 - R	Retaining clip
	Renew
	Can only be removed and installed with gearbox removed from vehicle ⇒ Servicing multitronic 0AW; Rep. gr. 39; Differential
19 - O	Dil seal
	For input shaft
	⇒ "3.4 Renewing oil seal for input shaft", page 110
20 - D	Qual-mass flywheel
	Can only be removed and installed with gearbox removed from vehicle ⇒ Servicing multitronic 0AW; Rep. gr. 38; Dismantling and assembling gearbox

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2 Gear oil

⇒ "2.1 Checking gear oil level", page 105

⇒ "2.2 Draining and filling gear oil", page 106

2.1 Checking gear oil level

Special tools and workshop equipment required

♦ Used oil collection and extraction unit - VAS 6622A-



Safety goggles

Procedure

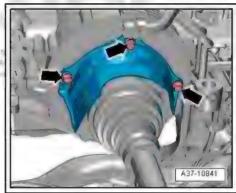
- Gear oil temperature approx. 20 °C (room temperature) to max. 50 °C.
- Vehicle must be absolutely horizontal (on a four-pillar lifting platform or over an inspection pit).
- Wait for 5 minutes after switching off engine so that gear oil can drain off.



Note

- Observe the general repair instructions ⇒ page 5.
- Rules for cleanliness when working on the automatic gearbox ⇒ page 5
- The filler and inspection plug must be renewed.
- The prescribed oil level must be adhered to exactly; the gearbox reacts very sensitively to overfilling.
- ♦ If gear oil has been drained during repair work, or after removing cover for front final drive, for example, put in a suitable amount of gear oil before proceeding ⇒ page 106.
- If fitted, remove bolts -arrows- and detach heat shield for drive shaft (right-side).

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- Place used oil collection and extraction unit VAS 6622A- underneath right side of gearbox.
- Unscrew plug -arrow-.
- Check the oil level using an improvised tool, for example a bent piece of wire.
- Specification: The oil level is correct when the front final drive is filled up to 20 mm below the bottom lip of the filler hole.

If gear oil level is too low:



Caution

Risk of damage to gearbox

- Different types of gear oil are available for the "multitronic OAW" gearbox.
- Use only the correct type of gear oil, as assigned to the gearbox code letters.
- The gear oils must NOT be mixed, even in small quantities. This would result in leaks at the oil seals. Select correct gear oil for vehicle according to gearbox code letters ⇒ Electronic parts catalogue . Only the gear oil available as a replacement part for the "multitronic OAW" may be used in the front final drive.
- The filler plug must always be renewed after checking the oil level. Always select correct version according to gearbox code letters in ⇒ Electronic parts catalogue . To prevent leaks on the gearbox, please check the new filler plug by comparing it with the old one.
- The gear oil must NOT be mixed with other types of gear oil, even in small quantities. This would cause leakage on the gearbox.
- Add some gear oil and wait for 5 minutes.

If gear oil level is too high:

Extract gear oil and wait for 5 minutes.



Note

It is important to wait for at least 5 minutes so that the internal oil level in the system has time to equalise.

- Repeat oil level check until oil level is correct.
- Tighten new screw plug.

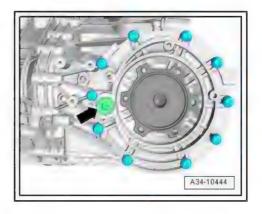
Tightening torques

- ⇒ Item 4 (page 79)
- Heat shield for drive shaft ⇒ Running gear, axles, steering; Rep. gr. 40; Drive shaft; Exploded view - drive shaft.

2.2 Draining and filling gear oil

Special tools and workshop equipment required

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♦ Used oil collection and extraction unit - VAS 6622A-



Safety goggles

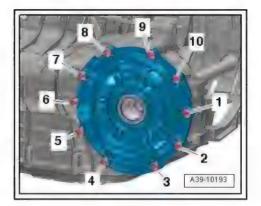
Procedure

If gear oil has been drained during repair work, or after removing cover for front final drive, for example, put in a suitable amount of gear oil before proceeding.

Filling should be performed before installing the gearbox so that there is sufficient time for the internal oil level to equalise.

Requirements:

- Gear oil was drained, e.g. after removing cover for front final
- Cover for front final drive has been re-installed.



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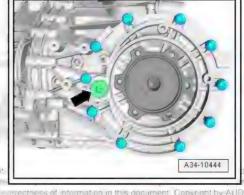
If gearbox is still removed, unscrew plug -arrow-.



Caution

Risk of damage to gearbox

- Different types of gear oil are available for the "multitronic OAW" gearbox.
- Use only the correct type of gear oil, as assigned to the gearbox code letters.
- The gear oils must NOT be mixed, even in small quantities. This would result in leaks at the oil seals. Select correct gear oil for vehicle according to gearbox code letters ⇒ Electronic parts catalogue . Only the gear oil available as a replacement part for the "multitronic 0AW" may be used in the front final drive.
- The filler plug must always be renewed after checking the oil level. Always select correct version according to gearbox code letters in ⇒ Electronic parts catalogue . To prevent leaks on the gearbox, please check the new filler plug by comparing it with the old one.
- The gear oil must NOT be mixed with other types of gear oil, even in small quantities. This would cause leakage on the gearbox.



Fill with 0.8 ltr. of gear oil.



Note

If pre-filling the gearbox when installed, it is necessary to wait for 35 minutes so that the oil level in the front final drive can equalise. Only then can the gear oil level be topped up correctly.

After installing gearbox, check gear oil level in front final drive and top up if necessary ⇒ page 105.

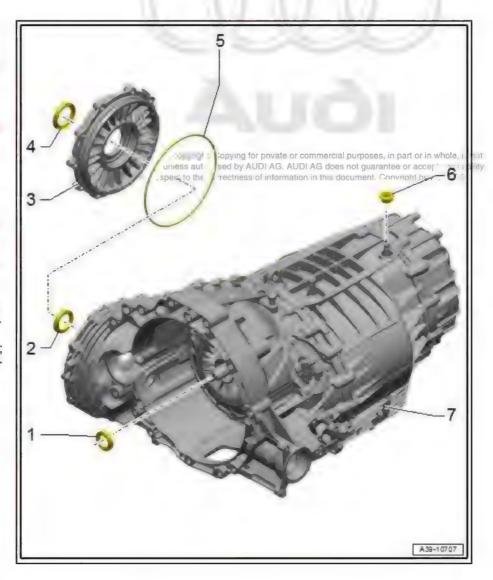


3 Oil seals

- ⇒ "3.1 Overview of fitting locations oil seals", page 109
- ⇒ "3.2 Renewing oil seal (left-side)", page 109
- ⇒ "3.3 Renewing oil seal (right-side)", page 110
- ⇒ "3.4 Renewing oil seal for input shaft", page 110

3.1 Overview of fitting locations - oil seals

- 1 Oil seal
 - □ For input shaft
 - □ Renewing ⇒ page 110
- 2 Oil seal (left-side)
 - □ For flange shaft
 - □ Renewing ⇒ page 109
- 3 Cover for front final drive
- 4 Oil seal
 - ☐ For flange shaft (rightside)
 - □ Renewing ⇒ page 110
- 5 O-ring
 - On cover for front final
 - □ Can only be renewed with gearbox removed from vehicle ⇒ Servicing multitronic 0AW; Rep. gr. 39; Oil seals; Renewing oil seal (leftside)
- 6 Oil seal
 - For selector shaft
 - □ Renewing ⇒ page 34
- 7 Gearbox



3.2 Renewing oil seal (left-side)

Procedure



Note

The oil seal for the flange shaft (left-side) can only be renewed with the gearbox removed from the vehicle.

Remove gearbox ⇒ page 35.

- Renew oil seal for flange shaft (left-side) ⇒ Servicing multitronic 0AW; Rep. gr. 39; Oil seals; Renewing oil seal (leftside).
- After installing gearbox, check gear oil level in front final drive and top up if necessary ⇒ page 105.

3.3 Renewing oil seal (right-side)

Procedure

- Remove flange shaft (right-side) ⇒ page 111.
- Renew oil seal for flange shaft (right-side) ⇒ Servicing multitronic 0AW; Rep. gr. 39; Oil seals; Renewing oil seal (rightside).
- Install flange shaft (right-side) ⇒ page 111.
- Check oil level in front final drive and top up as required ⇒ page 105 .

3.4 Renewing oil seal for input shaft

Procedure



Note

The oil seal for the input shaft can only be renewed with the gearbox removed from the vehicle.... As a con-

- Remove gearbox ⇒ page 35.
- Renew oil seal for input shaft ⇒ Servicing multitronic 0AW; Rep. gr. 39; Oil seals.
- After installing gearbox refer to ⇒ "7.1 Checking ATF level", page 87.



Differential 4

⇒ "4.1 Removing and installing flange shaft (left-side)", page 111

⇒ "4.2 Removing and installing flange shaft (right-side)", page 111

4.1 Removing and installing flange shaft (left-side)

Procedure



Note

The oil seal for the flange shaft (left-side) can only be renewed with the gearbox removed from the vehicle.

- Remove gearbox ⇒ page 35.
- Remove flange shaft (left-side) ⇒ Servicing multitronic 0AW; Rep. gr. 39; Differential; Removing and installing flange shaft (left-side) .
- After installing gearbox, check gear oil level in front final drive and top up if necessary ⇒ page 105.

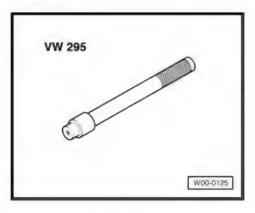
4.2 Removing and installing flange shaft (right-side)

Special tools and workshop equipment required

◆ Drift - VW 295-

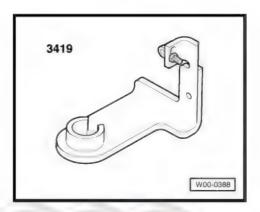
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Multi-purpose tool - VW 771-





Counterhold tool - 3419-



Used oil collection and extraction unit - VAS 6622A-

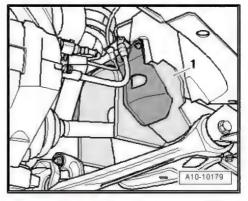


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- ♦ Nuts M10 (2x)
- Sealing grease G 052 128 A1-

Removing

- Remove front wheel (right-side) ⇒ Running gear, axles, steering; Rep. gr. 44; Wheels, tyres.
- Remove cover -1- for drive shaft (right-side) from wheel housing ⇒ General body repairs, exterior; Rep. gr. 66; Noise insulation; Exploded view - noise insulation.

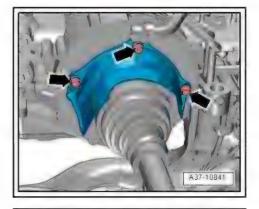


Remove bolts -arrows- and detach heat shield (right-side)

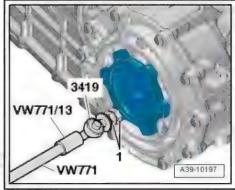




- Remove bolts -arrows- and detach heat shield for drive shaft (right-side).
- Unbolt drive shaft (right-side) from gearbox flange shaft and move it towards rear ⇒ Running gear, axles, steering; Rep. gr. 40; Drive shaft; Removing and installing drive shaft.



- Place used oil collection and extraction unit VAS 6622A- below gearbox.
- Screw eye bolt from counterhold tool 3419- into one of the threaded holes on flange shaft (right-side) with 2 nuts M10 -item 1- attached.
- Attach multi-purpose tool VW 771- with -VW 771/13- to eye bolt and pull flange shaft off gearbox.



Installing

Installation is carried out in the reverse order; note the following:



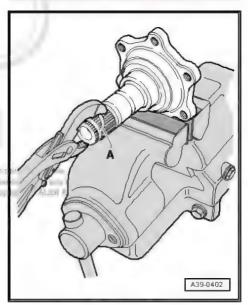
Note

Renew circlip for flange shaft (right-side).

- Clamp flange shaft in vice, using jaw protectors. Use new circlip -A- to press old circlip out of groove in flange shaft.
- Check oil seal for flange shaft (right-side) for damage and renew oil seal if necessary Servicing multitronic 0AW; Rep. gr. 39; Oil seals; Renewing oil seal (right-side) .
- Pack space between sealing lip and dust lip half-full with sealing grease - G 052 128 A1-.
- Drive in flange shaft (right-side) with drift VW 295- .
- Check oil level in front final drive and top up as required ⇒ page 105 .

Tightening torques

- ⇒ Running gear, axles, steering; Rep. gr. 40; Drive shaft; Exploded view - drive shaft
- ⇒ Running gear, axles, steering; Rep. gr. 44; Wheels, tyres
- ⇒ General body repairs, exterior; Rep. gr. 66; Strips / trim panels / extensions; Exploded view - heat shield



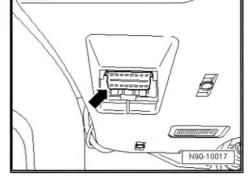
5 Gearbox control system

- ⇒ "5.1 Overview of fitting locations gearbox control system",
- ⇒ "5.2 Removing and installing gearbox control unit", page 117
- ⇒ "5.3 Removing and installing hydraulic control unit", page 117

5.1 Overview of fitting locations - gearbox control system

Diagnostic connection

- Fitting location: The diagnostic connection for the vehicle diagnostic tester is located in the driver's footwell.
- Before servicing the gearbox, the exact cause of the failure should be identified using Guided Fault Finding, Vehicle Self-diagnosis and Test Instruments ⇒ Vehicle diagnostic tester.



Automatic gearbox control unit - J217-

Fitting location: the automatic gearbox control unit - J217- is fitted at rear end of gearbox directly on hydraulic control unit.

The following components are integrated in the automatic gearbox control unit - J217- and can only be renewed together with the automatic gearbox control unit - J217-:

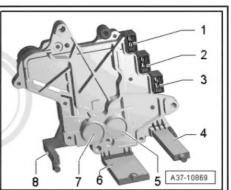
- Connector for hydraulic control unit to solenoid valve 1 -N88-
- Connector for hydraulic control unit to automatic gearbox pressure regulating valve 2 - N216-
- 3 -Connector for hydraulic control unit to automatic gearbox pressure regulating valve 1 - N215-
- Gearbox input speed sender G182- and gearbox input speed sender 2 - G612copyright. Copying for private or commercial purposes, in part or in whole, is not
- Hydraulic pressure sender for automatic gearbox 6193 arantee or accept any liability t. Copyright by AUDI AG.
- Multifunction switch F125- (also designated as gear sen-
- 7 -Hydraulic pressure sender 2 for automatic gearbox - G194-
- Gearbox output speed sender G195-



Note

The automatic gearbox control unit - J217- is monitored via selfdiagnosis.

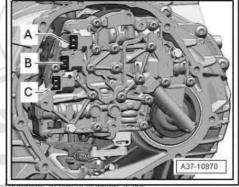
Removing and installing ⇒ Servicing multitronic 0AW; Rep. gr. 39; Gearbox control system; Removing and installing gearbox control unit





Hydraulic control unit

- Fitting location: The hydraulic control unit is bolted to rear end of gearbox. The automatic gearbox control unit - J217- is fitted directly onto the hydraulic control unit.
- A Connector for solenoid valve 1 N88-
- B Connector for automatic gearbox pressure regulating valve 2 - N216-
- C Connector for automatic gearbox pressure regulating valve 1 - N215-





Note

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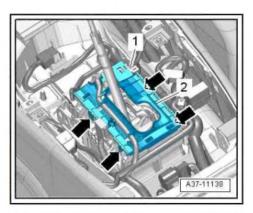
The valves are monitored via self-diagnosis.

Removing and installing ⇒ Servicing multitronic 0AW; Rep. gr. 39; Gearbox control system

Selector lever sensors control unit - J587- and tiptronic switch -F189-

Fitting location: the selector lever sensors control unit - J587and the tiptronic switch - F189- are combined in a single component -2- which is clipped onto the shift unit -arrows-.

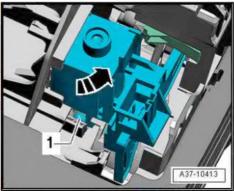
⇒ "1.11 Removing and installing selector lever sensors control unit J587 ", page 33



Selector lever lock solenoid - N110-

 Fitting location: the selector lever lock solenoid - N110--item 1- is clipped onto the selector mechanism.

⇒ "1.10 Removing and installing selector lever lock solenoid N110 ", page 31



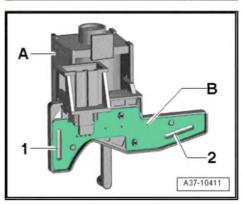
Gear selector position P switch - F305-

Fitting location: Gear selector position P switch - F305- consists of two reed contacts (-1- and - 2-) and is installed on printed circuit board -B- in selector lever lock solenoid - N110--A-.



Note

Gear selector position P switch - F305- can only be renewed together with selector lever lock solenoid - N110-.



Selector lever position display - Y6-

Fitting location: the selector lever position display - Y6--arrow- is integrated in the instrument cluster.



Note

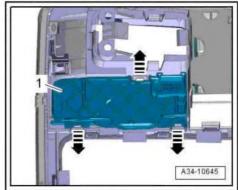
If the selector lever position display is defective, the instrument cluster must be renewed ⇒ Electrical system; Rep. gr. 90 ; Dash panel insert; Exploded view - dash panel insert .



Fitting location: selector lever position display - Y26- -item 1is clipped into multimedia system operating unit - E380- .

Removing and installing ⇒ Electrical system; Rep. gr. 96; Lights; Removing and installing selector lever position display - Y26-





Kickdown switch - F8-

A programmed value from accelerator position sender - G185- / accelerator position sender 2 - G79- (integrated in accelerator pedal module) is stored in the engine control unit as the kickdown signal.

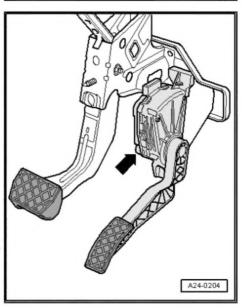
Fitting location: the accelerator position senders are integrated in the accelerator pedal module -arrow-.



Note

The accelerator pedal module must be renewed if one of the accelerator position senders is defective; removing and installing ⇒ Fuel supply system; Rep. gr. 20; Accelerator mechanism; Removing and installing accelerator pedal module with accelerator moving and installing accelerator private or commercial purposes, in part or in whole, is not position sender cross authorised by AUDI AG. AUDI AG does not guarantee or accept any liability

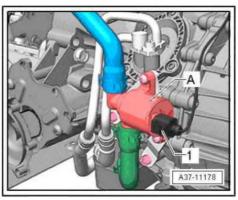
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Gearbox oil cooling valve - N509-

- Fitting location: The gearbox oil cooling valve N509--item A- is secured to the left side of the gearbox.
- Electrical connector

Removing and installing ⇒ Rep. gr. 19; Coolant pump/thermostat assembly; Removing and installing coolant valves





5.2 Removing and installing gearbox control unit

Procedure

- Remove end cover ⇒ page 100 .
- Remove and install automatic gearbox control unit J217- ⇒ Servicing multitronic 0AW; Rep. gr. 39; Gearbox control system; Removing and installing gearbox control unit .
- Install end cover ⇒ page 100 .

Removing and installing hydraulic con-5.3 trol unit

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Procedure

- Remove end cover ⇒ page 100.
- Remove and install hydraulic control unit \Rightarrow Servicing multitronic 0AW; Rep. gr. 39; Gearbox control system .
- Install end cover ⇒ page 100.